

RCRA FACILITY ASSESSMENT REPORT

for

PERMA-FIX ENVIRONMENTAL SERVICES OF FT. LAUDERDALE

**3670 SW 47th Avenue
Davie, Florida**

FLD 981 018 773

Prepared by:

**Florida Department of Environmental Protection
Division of Waste Management
Bureau of Solid and Hazardous Waste**

February 2001 (Final Report)

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I. EXECUTIVE SUMMARY

This Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) report is based on a preliminary review (PR) of Florida Department of Environmental Protection (FDEP or Department) files and a Visual Site Inspection (VSI) conducted at Perma-Fix of Ft. Lauderdale, Florida (FLD 981 018 773). The PR was conducted on May 1 and 2, 1997, and the VSI was conducted on May 6, 1997. The purpose of the RFA was to identify Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) located at the facility and to assess their potential for the release of hazardous constituents to air, surface water, soil, and groundwater. The potential for subsurface gas release was also assessed. An AOC is an area of potential or suspected release that is not associated with a SWMU.

Perma-Fix of Ft. Lauderdale, Inc. is located at 3670 SW 47th Avenue in Davie, Broward County, Florida (See Figure 1). The facility occupies approximately six acres of land in an industrial area. PMI Industries, a used oil and wastewater processor, is located just south of Perma-Fix. A Wheelabrator landfill is located about half a mile east of the facility. Florida Petroleum Reprocessors, a Superfund site, is located about three-quarters of a mile northwest of the facility.

Perma-Fix's on-site recycling operations include processing and reclamation of used oil, off-specification Bunker C fuel oil, oily wastewater, and petroleum contact wastewater. Perma-Fix is also a registered transporter of used oils and hazardous waste.

Perma-Fix's predecessor at the site, Integrated Resource Recovery (IRR), began operations at the Davie site on January 18, 1985. IRR's operations included processing and recycling of waste oil and oily wastewater, treatment of D018-D043 hazardous wastewater, and storage and transportation of hazardous waste.

On September 24, 1990, IRR submitted a Part A operating permit application to FDEP for the treatment and storage of benzene-contaminated wastewater at the facility. Subsequently, the U. S. EPA granted interim status to the facility on September 25, 1990. On November 30, 1990, IRR submitted a revision to the Part A permit application. After receipt of delegation for the TCLP rule, the Department notified IRR on October 10, 1991 that a temporary operating permit (TOP) was required to continue operations at the site. Consequently, IRR was required to submit a Part B permit application to the Department.

The Part B permit application was submitted on October 29, 1991 by IRR to FDEP. After this application was determined incomplete by the Department, IRR resubmitted a revised application on January 19, 1993. But, the facility soon underwent a change of ownership, which resulted in Perma-Fix becoming the new proprietors of the facility in early 1995. On December 7, 1995, Perma-Fix withdrew the Part B permit application with the Department's concurrence. Perma-Fix based this action on the fact that it did not intend to continue accepting benzene-contaminated wastewater for processing at the facility. However, the Department made Perma-Fix aware of the fact that exemption from RCRA regulations under 40 CFR Part 260.1 was not applicable to the treatment system at the facility. Subsequently, the facility submitted a used oil processing facility permit application to the Department on April 15, 1997. The state used oil processor permit was issued on November 18, 1997.

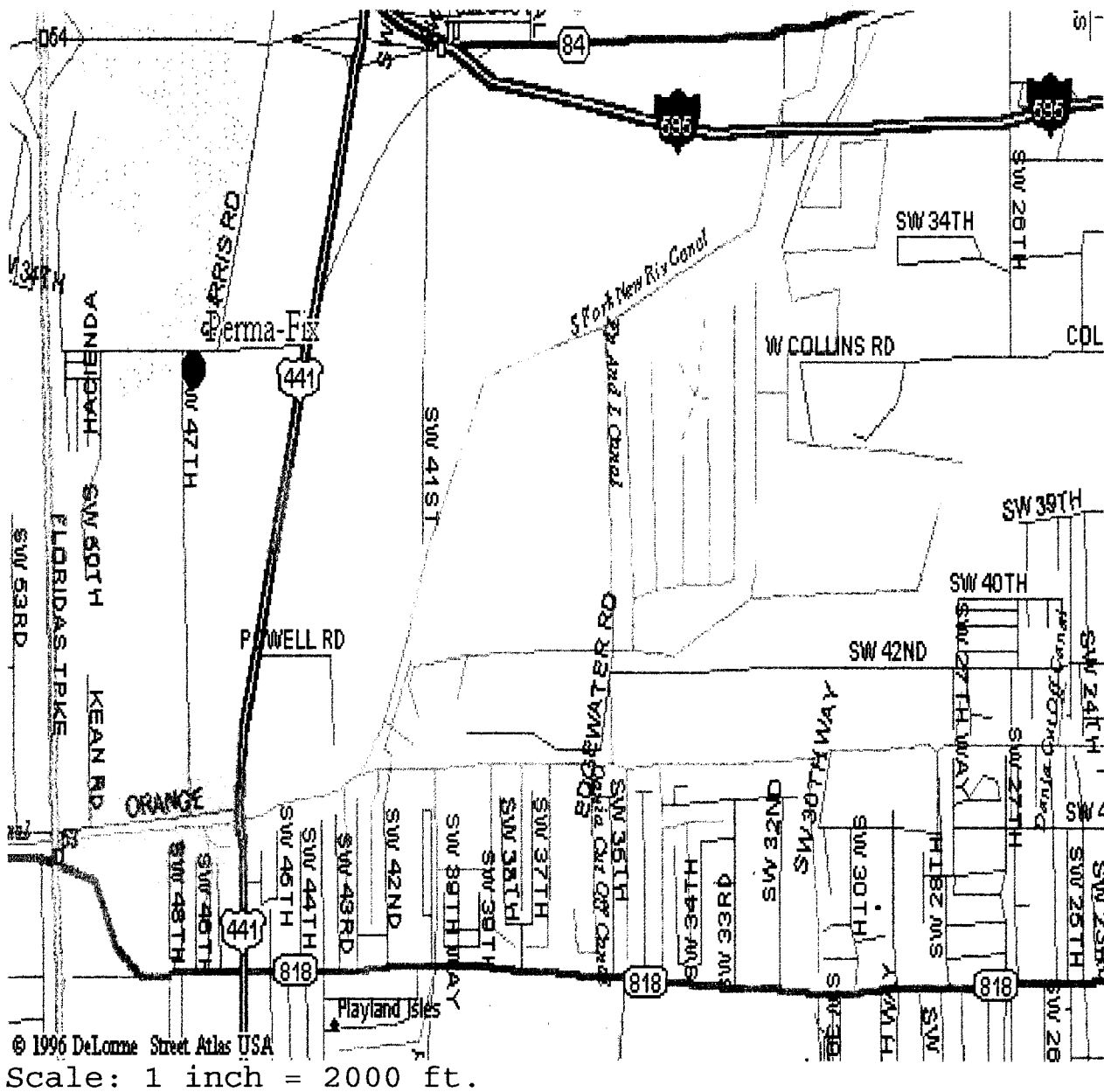
In a letter dated September 9, 1996, FDEP informed Perma-Fix that the facility was subject to the RFA process and that a VSI was planned for October 29, 1996 at the facility. However, prior to the VSI date, a spill of several thousand gallons of industrial wastewater and used oil occurred at the facility, resulting in the release of wastewater from the storage tanks to the surrounding soils. Additional information on the spill is provided in the SWMU No. 1 data sheets and References 5 and 6. As a result of the spill, Perma-Fix requested and received Departmental approval to postpone the VSI until a later date. The VSI was subsequently rescheduled and conducted on May 6, 1997. The facility has conducted preliminary remedial actions in the area of the spill (SWMU No. 1), including contaminated soils removal. The facility was also conducting a site investigation to characterize the spill. These actions are being directed by the Broward County Department of Natural Resources Protection (DNRP).

Twelve SWMUs and one AOC were identified at the facility by the Department as a result of the PR and VSI. The location of these units is shown in Figure 2. The SWMUs identified include the Spill Area (SWMU No. 1) and the Retention Pond (SWMU No. 4) located in the southwestern portion of the site.

The results of the contamination assessment conducted by the facility to investigate the release that impacted SWMU No. 1 indicate the presence of a plume of vinyl chloride in the shallow aquifer. A RCRA Facility Investigation has been recommended for SWMU No. 1 (Spill Area) to address this release.

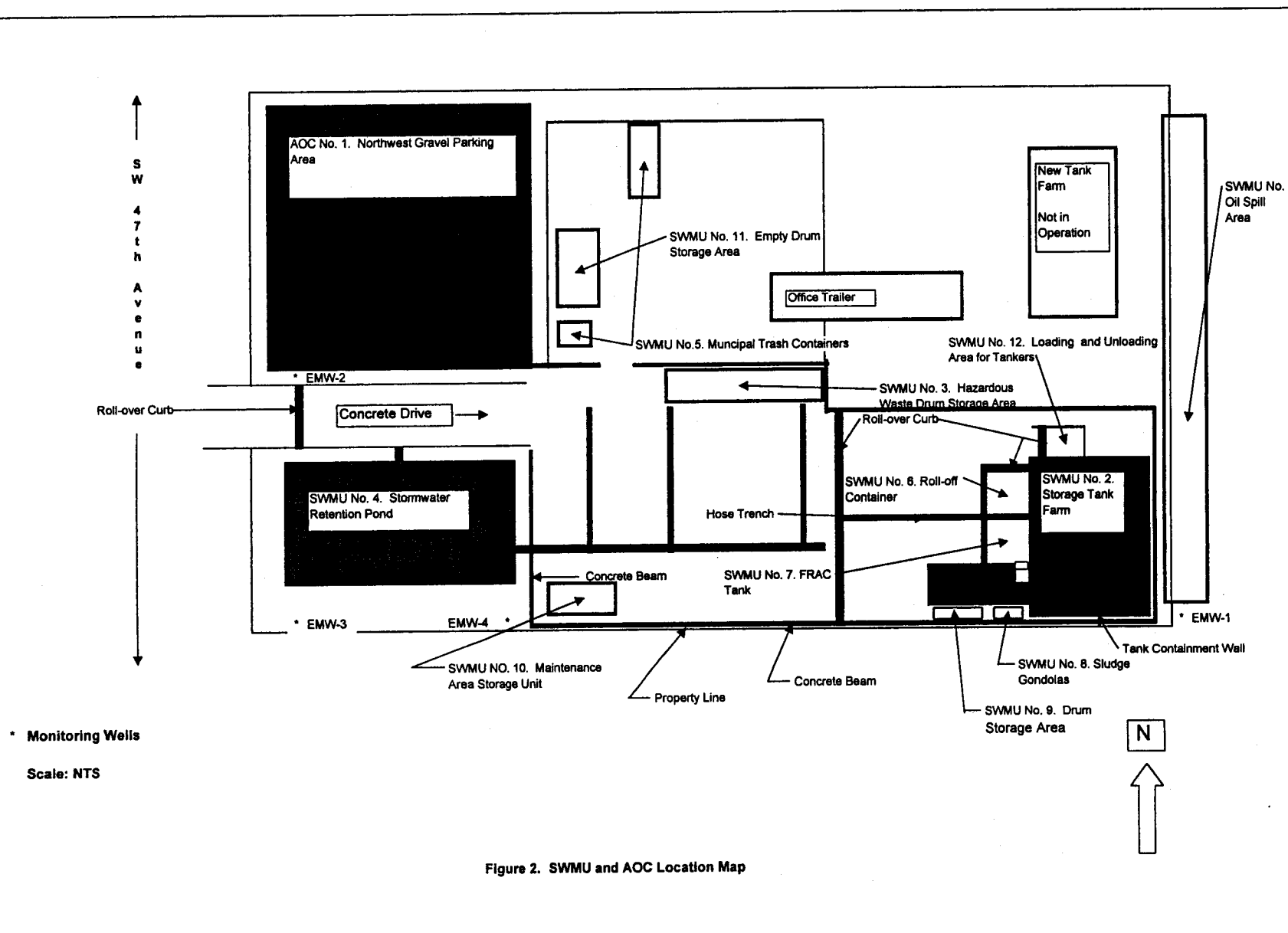
Confirmatory Sampling has been recommended for the Retention Pond (SWMU No. 4). This pond had historically received stormwater runoff from the concrete-paved areas at the facility. The stormwater may be contaminated.

The recommendations made by the Department regarding the required actions or non-actions for the SWMUs and the AOC identified at the facility are contained in Table 1 and the SWMU and AOC data sheets (Appendix A). Photographs taken of the units during the VSI are included in Appendix B.



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Figure 1: Site Location Map



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TABLE 1

SWMU/AOC IDENTIFICATION SUMMARY

SWMU/ AOC NO.	TYPE OF UNIT	YEARS OF OPERATION	WASTE MANAGED	POLLUTANT MIGRATION PATHWAYS ¹	EVIDENCE OF RELEASE ²	EXPOSURE POTENTIAL ³	RECOMMENDATIONS			
							INTERIM MEASURES NEEDED	RFI ⁶	NFA ⁴	CS ⁵
1. Spill Area	Storage Spill Area	Spill Date: 10/14/96	Waste Oil, Oily Wastewater, Petroleum Contact Wastewater, Off- Spec. Bunker C Fuel Oil	Air Surface Water Soil Groundwater Subsurface Gas	Yes	H H H H		X		
2. Storage Tank Farm	Above-Ground Storage Tank	1985 - Present	Used Oil, Oily Waste, Oily Wastewater	Air Surface Water Soil Groundwater Subsurface Gas	Yes	M L L L L			X	
3. Hazardous Waste Drum Storage Area	Hazardous Waste Drum Accumulation/ Transfer Unit	1992 - Present	Oily Wastes, Sludge Hazardous Wastes & Wastewater (D001 - D043)	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L M			X	
4. Retention Pond	Surface Impoundment	1985 - Present	Storm Water Runoff	Air Surface Water Soil Groundwater Subsurface Gas	Yes	L H H H H				X
5. Municipal Trash Containers	Domestic Waste Container Accumulation Unit	1985 - Present	Municipal Waste	Air Surface Water Soil Groundwater Subsurface Gas	None	L L L L L			X	

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TABLE 1 (CONTINUED)

SWMU/AOC IDENTIFICATION SUMMARY

SWMU/ AOC NO.	TYPE OF UNIT	YEARS OF OPERATION	WASTE MANAGED	POLLUTANT MIGRATION PATHWAYS ¹	EVIDENCE OF RELEASE ²	EXPOSURE POTENTIAL ³	RECOMMENDATIONS			
							INTERIM MEASURES NEEDED	RFI ⁶	NFA ⁴	CS ⁵
6. Rolloff Container	Container Waste Accumulation Unit	1997 - Present	Oily Sludge, Oily Solids	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L L			X	
7. Frac Tank	Waste Treatment Tank	1996 - Present	Oily Wastewater, Oily Sludge, Oily Solids	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L L			X	
8. Sludge Gondolas	Container Waste Accumulation Unit	1996 - Present	Oily Sludge, Oily Rags, Oily Paper, Oily Debris	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L L			X	
9. Drum Storage Area	Drum Storage Unit	1985 - Present	Off-Spec. Caustic Soda	Air Surface Water Soil Groundwater Subsurface Gas	None	L L L L L			X	
10. Maintenance Area Storage Unit	Container Storage Unit	1985 - Present	Off-Spec. Oils, Fuels, Degreasers	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L L			X	
11. Empty Drum Storage Area	Drum Storage Unit	1985 - Present	Empty Drums of Wastes	Air Surface Water Soil Groundwater Subsurface Gas	None	L L L L L			X	

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TABLE 1 (CONTINUED)

SWMU/AOC IDENTIFICATION SUMMARY

SWMU/ AOC NO.	TYPE OF UNIT	YEARS OF OPERATION	WASTE MANAGED	POLLUTANT MIGRATION PATHWAYS ¹	EVIDENCE OF RELEASE ²	EXPOSURE POTENTIAL ³	RECOMMENDATIONS			
							INTERIM MEASURES NEEDED	RFI ⁶	NFA ⁴	CS ⁵
12. Loading and Unloading Area for Tankers	Waste Transfer Unit	1985 - Present	All Wastes Managed in SWMU Nos. 2, 3, 6, 7 and 8	Air Surface Water Soil Groundwater Subsurface Gas	None	M L L L			X	
AOC 1. Northwest Gravel Parking Area	Storm Water Drainage Area	1996 - Present	Storm Water	Air Surface Water Soil Groundwater Subsurface Gas	None	L L L L			X	

¹ Pollution migration pathways are Air, Surface Water, Soil, Groundwater, and Subsurface Gas.

² Evidence of Release is defined as visual sign(s) of contamination, analytical documentation of release(s), discharge point violations, facility representative statements, or documentation of release(s) on file.

³ For Exposure Potential, "H" designates High, "M" designates Moderate, "L" designates Low, and "U" designates Unknown Exposure Potential.

⁴ "NFA" indicates no further action is required under the RFA.

⁵ Confirmatory Sampling is required.

⁶ "RFI" indicates RCRA Facility Investigation, if required.

II. INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA broadened the United States Environmental Protection Agency (EPA) authorities to require corrective action for any release of hazardous waste(s) or hazardous constituent(s) from SWMUs and AOCs at all operating, closed, or closing RCRA facilities. The intent of the Act was to address any previously unregulated releases to air, surface water, soil, and groundwater. The initial phase in the corrective action process, as established by EPA, is the RFA. The RFA includes a PR, during which information on the subject facility is reviewed and a preliminary list of SWMUs and AOCs is developed, and a VSI conducted after the PR. The VSI includes a site visit, during which SWMUs and AOCs are assessed to determine their potential for releasing hazardous waste(s) and/or hazardous constituent(s) to the environment. If warranted, confirmatory sampling (CS) is conducted after the VSI for selected SWMUs or AOCs to investigate any suspected release(s) of hazardous waste(s) and/or hazardous constituent(s) from the units.

This RFA report includes summaries of results, conclusions, and recommendations made by the Department as a result of the PR and VSI at Perma-Fix (EPA ID No. FLD 981 018 773). The PR was conducted from May 1-2, 1997 at FDEP offices in Tallahassee, and the VSI was conducted at the Perma-Fix facility on May 6, 1997.

A. PRELIMINARY REVIEW AND VISUAL SITE INSPECTION:

The documents reviewed during the PR included compliance and permitting information. As a result of the review, FDEP staff were able to compile background data on existing and potential SWMUs and the AOC at the facility and construct a composite regulatory and operational history of the units.

The following regulatory personnel conducted a VSI at the facility on May 6, 1997: Harry DeSai (EPA), Alex Owutaka (Engineer III, FDEP), and Vince Peluso (Engineer III, FDEP). Chris Blanton and Tom Trebonik represented Perm-Fix. The VSI and PR were conducted in accordance with the RCRA RFA Guidance Document dated October 1986. The purpose of the VSI was to undertake a visual tour of the site and evaluate information necessary for identifying any existing, previous or potential sources of release of hazardous waste(s) and/or hazardous constituent(s) that would require corrective action(s).

During the VSI, the inspection team reviewed information on facility operations and waste management practices and identified SWMUs and the AOC in existence at the facility.

B. FACILITY DESCRIPTION:

The Perma-Fix facility encompasses approximately six acres. Most facility operations are conducted in the Storage Tank Farm Area (SWMU No. 2) and the truck loading/unloading bays (SWMU No. 12). The Retention Pond (SWMU No. 4), located in the southwest corner of the site, collects stormwater runoff from the site. The location of the SWMUs and AOC at the site is shown in Figure 2.

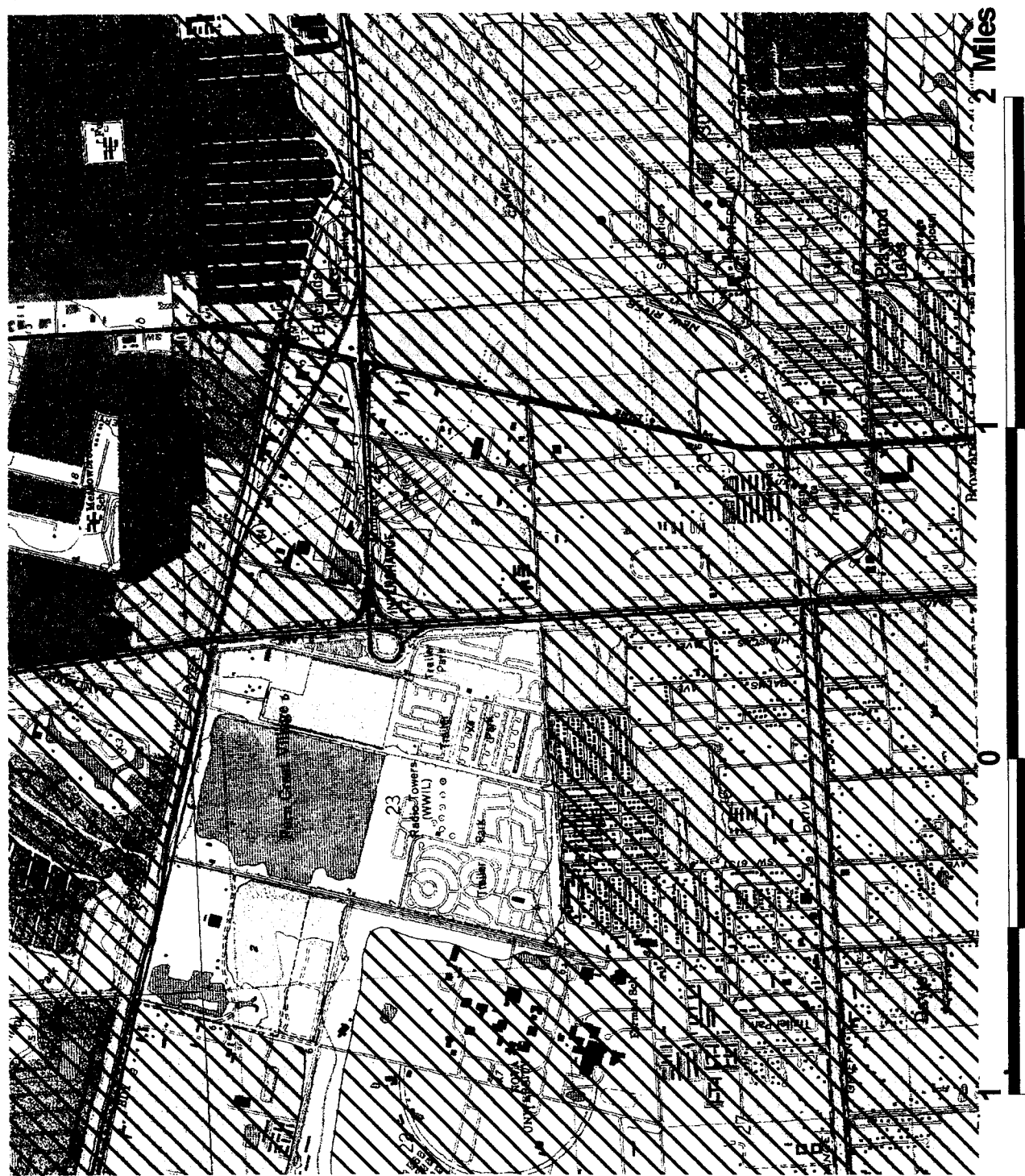
For operations at the site, the Storage Tank Farm (SWMU No. 2) and the Loading and Unloading Area for Tankers (SWMU No. 12) are located within a containment area. The containment area has a concrete base surrounded by concrete containment walls. There are no drains which would convey stormwater out of the SWMU No. 2 and No. 12 containment area. Stormwater and spills collect in sumps from which they are pumped into an oily wastewater holding tank for storage and off-site treatment.

Stormwater runoff from the paved parking lot west of the Loading and Unloading Area for Tankers, as described in detail in Reference 3, is collected in three-inch deep trenches cut into the concrete surface of the parking lot and then drains into the on-site stormwater retention pond (SWMU No. 4) immediately adjacent to the parking lot. The stormwater from the west end of the entrance drive drains into the north side of the retention pond. The drain trenches and the channel drain, located as shown on Figure 4, convey stormwater into the retention pond. Retention pond flume channels also are shown in Photograph 5. The channel connecting the parking lot to the retention pond allowed rainwater runoff potentially contaminated by petroleum-based compounds, released from automobiles, transport vehicles and other vehicle accessories, to be discharged into the retention pond. Rainwater runoff from the concrete parking lot north of the entrance drive discharges into the Northwest Gravel Parking Area (AOC No. 1). The new South River Canal, which is less than a half mile south of the site, collects stormwater run-off from the region. The on-site Stormwater Retention Pond (SWMU No. 4) is 111 feet long, 61 feet wide and about 2 feet deep.

Because the entire facility is within a 100-year flood zone (see Figure 3 for the extent of the flood zone), contingency procedures, described in the permit application (Reference 3), were established for removal of containerized hazardous waste from the facility to other off-site hazardous waste storage facilities outside the flood zone, if major flooding were anticipated.

Five monitoring wells, three of which still exist, at the site have been used historically, under the local stormwater program, to sample groundwater in the vicinity of the retention pond for evidence of sheen, odor, or contamination. None of these historical analytical data for the pond have been made available to the Department. In addition, monitoring wells have been installed at SWMU No. 1 for use in the assessment of the 1996 spill (Reference 6). Preliminary analytical results from the groundwater assessment indicate that there may be groundwater contamination. The analytical data from the groundwater assessment, the Superfund site investigation near the site and the groundwater monitoring will be reviewed by the department. A RCRA Facility Investigation has been recommended to determine the extent of contamination at SWMU No. 1.

The Storage Tank Farm (SWMU No. 2) included twenty-three above-ground steel storage tanks and the ancillary piping which are used for storing or treating waste oil and wastewater. Nineteen tanks remain (Tanks T-1 through T-18 and T-7). The layout for the existing Storage Tank Farm is included in Appendix E. The facility also has constructed a new tank farm north of the Storage Tank Farm. Although one -100,000 gallon and two-30,000-gallon tanks have been installed in the new tank farm, the new tanks have not been placed in operation.



FEMA Zones
IN
OUT

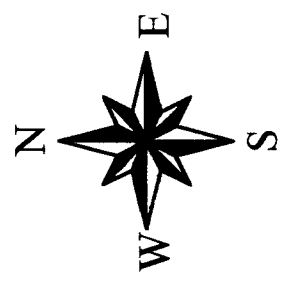


Figure 3 - Flood Plain Map
II - 3

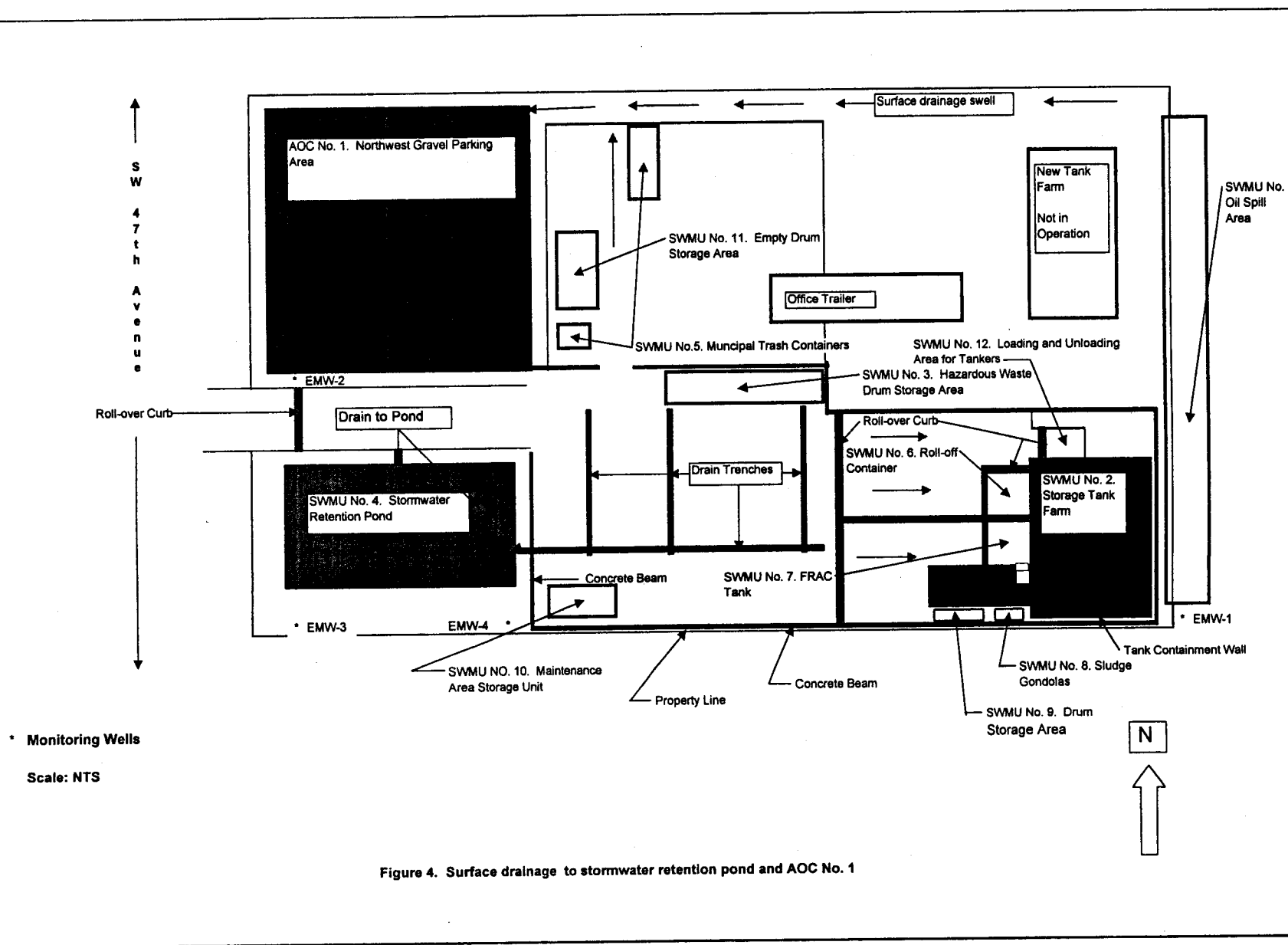


Figure 4. Surface drainage to stormwater retention pond and AOC No. 1

The existing Storage Tank Farm is surrounded by two containment wall systems. The inside wall containment system (primary) is thirty-two inches high and is reinforced with thirty-six vertical inches of rebar anchored six inches into the concrete floor. The outside concrete wall (beam) containment system (secondary) encloses the primary wall system and the Loading and Unloading Area for Tankers (SWMU No. 12). The outside wall is sixteen inches high and is also anchored with rebar. These walls protect the tanks and piping from flood water and also provide containment for spills. The floor of the tank farm is constructed of reinforced concrete coated with Rust Oleum 9578 Coal Tar Epoxy. A more elaborate description of the tank farm area is included in the SWMU No. 2 data sheets (Appendix A).

Perma-Fix maintains an inventory of 20,000 to 50,000 gallons of used oil. Non-hazardous used oil is filtered through filters mounted on the pump truck as the used oil is transferred to a storage tank. In the storage tank, sludge and other impurities will settle out from the oil. Thermal treatment of wastewater is currently conducted inside the T-7 Tank located in the Storage Tank Farm (see Appendix E). The treatment operation in the T-7 Tank utilizes a phase separation process, and the treatment capacity is between 12,000 to 18,000 gallons per day. Perma-Fix also maintains an inventory of contaminated wastewater of approximately 30,000 gallons.

Perma-Fix has a storage area for containerized hazardous wastes and usually has a consignment of about 20 to 40 drums of hazardous wastes at any given time. This area is known as the Hazardous Waste Drum Storage Area (SWMU No. 3) and is described in more detail in the SWMU No. 3 data sheets (Appendix A).

Perma-Fix has not been using the old wastewater treatment facility, located in the Storage Tank Farm, since late 1996. The old wastewater treatment facility was located in the Storage Tank Farm area where Tank T-7 and T-18 (see Appendix E) are now located. The old system included a 20,000 gallon oil primary treatment tank, a 3,000 gallon sludge conditioning tank, a 6,500 gallon dissolved air flotation tank (retained but no longer used for treatment) and appurtenance equipment. A new wastewater treatment facility was constructed in the new tank farm. However, this new treatment facility has not been placed in service yet.

C. FACILITY OPERATIONS AND PROCESSES:

The main operations currently conducted at the Perma-Fix facility include:

- processing and recycling of used oil, oily wastes, and oily wastewater;
- transfer of hazardous and non-hazardous wastes/wastewater; and
- temporary storage of hazardous wastes received from customer facilities (transfer facility).

All hazardous wastes are stored in the hazardous waste transfer facility, SWMU No.3.

In the past, however, the facility (then known as Integrated Resource Recovery) also treated industrial wastewater that sometimes failed TCLP for benzene in a wastewater treatment tank system located in the Storage Tank Farm. The wastewater treatment tank system was

removed from service by Perma-Fix in 1996. Currently, only non-hazardous oily wastes, oily wastewater, and used oil are treated at the site. The oily wastes and wastewater are treated in the T-7 Tank located within the tank farm. The treatment process, described in Section II.C.1, in the T-7 Tank is a physical phase separation of oil from water under applied heat.

Used oil is processed by filtration with truck-mounted filters, followed by sedimentation of sludge inside the storage tank.

Non-hazardous wastes processed at the facility include used oil, oily wastes, oily wastewater, off-specification Bunker C fuel oil, petroleum contact wastewater, and non-hazardous sludge.

The facility provides temporary storage and transfer services for hazardous wastes collected from customer facilities. These hazardous wastes are temporarily stored in the Hazardous Waste Drum Storage Area, SWMU No. 3, prior to being shipped off-site for disposal. Some of the wastes stored in this drum storage area include spent mineral spirits, lacquer paint thinners, spent antifreeze, solid paint wastes contaminated with thinner, TCLP toxic wastewater, compressor/refrigerant oils containing chloroflourocarbons, and contaminated sludge and soils from environmental remediation sites.

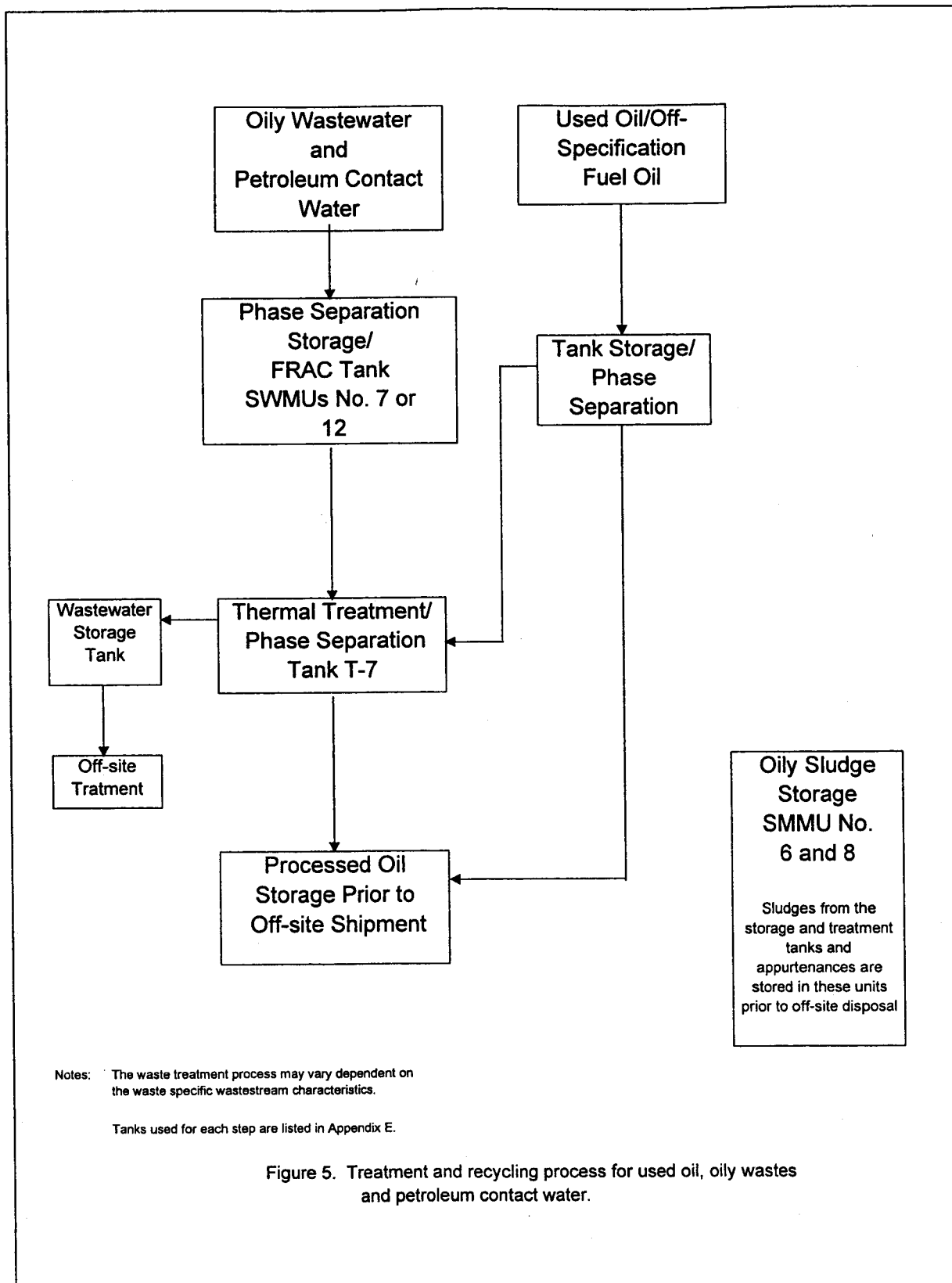
Perma-Fix is registered with the State of Florida as a hazardous waste transfer facility for these temporary storage and transfer services.

A more detailed description of processes and operations conducted at the facility are as follows:

1. Treatment and Recycling of Used Oil and Oily Wastes:

The facility treats and recycles used oil and oily wastes. These include used oil, off specification Bunker C fuel oil, oil filters, and non-hazardous oily compressor wastewater.

Used oil and oily wastes are collected in pump trucks, which have three compartments, from generators such as auto dealerships. Prior to delivery to Perma-Fix, the generator analyzes the waste for TCLP constituents in order to determine if the waste is hazardous. If the waste is hazardous, Perma-Fix will not accept it for processing, but will accept it as transfer or temporary storage waste. The non-hazardous used oil is filtered using filters mounted on pump trucks and transferred to a storage tank so that sludge and other impurities would settle out from the oil. The steps in the treatment process are shown in Figure 5. Processed oil is blended according to customer specifications and sold to asphalt and utility companies (a list of companies purchasing the processed oil is included in Table II.A-5-2. End Use/Disposal Sites of Wastes Managed at the Facility in Reference 3) for use as burner fuel. Oily wastes and wastewater are processed in the T-7 Tank to recover oil. The oily wastes are processed inside the T-7 Tank to recover oils by the physical process of phase separation between oil and water. Heat is applied to facilitate the separation process. The oil is transferred into a storage tank where sludge and other impurities settle to the bottom of the tank. The treated oil is tested monthly for compliance with federal standards for "on-specification" fuel oil. Each load of oily wastes and wastewater delivered to the facility is tested for halogens with a Dexsil test kit to ensure that the oil does not contain more than 1,000 ppm of total halogen(s). Used oil or oily waste containing more than 1,000 ppm of total halogen(s) is presumed to be a hazardous waste and is not treated at the facility. However, this presumption can be rebutted by demonstrating that the waste does not contain a "significant concentration" of a halogenated constituent listed in Appendix VIII of 40



CFR 261 (primarily those halogenated solvents listed as F001 and F002 wastes). A "significant concentration" of a halogenated constituent, as described by the EPA, is a single halogenated constituent with a concentration exceeding 100 ppm. Consequently, a waste containing over 100 ppm of a halogen is classified as hazardous and not processed at the facility. Such a waste is handled as a transfer waste only and is temporarily stored in the Hazardous Waste Drum Storage Area for future shipment to a permitted disposal facility.

2. Treatment and Storage of Oily Wastewater:

Perma-Fix transports the oily wastewater, whether collected from generators or separated during processing of oily wastewater to recycle the used oil portion, to the Cliff Berry industrial wastewater facility for further treatment. Oily wastewater is collected from generators in the second compartment of the three-compartment pump trucks. The term "oily wastewater" refers to non-hazardous oily wastewater, based on TCLP tests of petroleum-based contaminants in the waste stream or generator technical knowledge of the waste stream, if the source and extent of contamination is known. The oily wastewater includes oil/water separator wastewater, storage tank bottom wastewater, oily rainwater runoff, and contaminated groundwater from petroleum remediation activities.

Upon arrival at the facility, each load of oily wastewater is tested for halogens, as described in Section C.1 above, using the Dexsil test kit. Non-hazardous oily wastewater is transferred from the truck to the Frac Tank (SWMU No. 7) to achieve primary settling of sludge and oil/water separation. The wastewater is transferred from the Frac Tank to the T-7 Tank for treatment by the phase separation process. Prior to being discharged into the T-7 Tank, the wastewater is pH-tested to ensure pH is within the acceptable treatment range. Treated effluent is tested to ensure that it passes TCLP tests before being transported to the Cliff Berry industrial wastewater facility. The physical separation process is a batch treatment process with capacity between 12,000 to 18,000 gallons per day. The steps in the process are shown in Figure 4.

Historically, wastewater contaminated with TCLP constituents D004 - D043 was treated in the wastewater treatment facility located in the Storage Tank Farm, described in Section II.B. The wastewater treatment plant was closed and dismantled by Perma-Fix in late 1996. Wastewater treated in the closed plant was first pumped into a 20,000 tank to achieve primary oil/water separation. From the holding tank, the wastewater was pumped into an oil/water separator to remove remaining free-floating oils. Then, the wastewater was routed through the third tank for a series of treatment processes, which included dissolved air flotation, chemical treatment for solids separation, clarification, pH adjustment, primary filtration and final carbon adsorption for the removal of organics.

3. Hazardous Waste Transport:

Perma-Fix provides hazardous waste transportation and storage services to hazardous waste generators. Prior to delivery to Perma-Fix, the waste is analyzed by the generator to determine if it is hazardous. However, in lieu of the testing, the generator may use knowledge of the waste stream to make this determination. Hazardous wastes delivered to Perma-Fix are stored in the Hazardous Waste Drum Storage Area (SWMU No. 3) to await transportation to a permitted disposal facility. Wastes managed in the drum storage area include mineral spirits,

antifreeze, paint waste containing thinners, industrial wastewater, hazardous oily wastes, compressor/refrigerant oils containing chloroflourocarbons, and contaminated sludge/soils.

D. FACILITY WASTE MANAGEMENT PRACTICES:

1. Used Oil:

As described in detail in Section II.C.1, used oil is collected in pump trucks, which have three compartments from generators such as auto dealerships. At the facility, used oil is filtered with truck-mounted filters and discharged into a storage tank. Sludge is removed from the oil by settling action while the oil is stored in the storage tank. Processed oil is blended according to customer specifications and sold to asphalt companies and public utilities for use as burner fuel.

2. Oily Wastewater:

As described in detail in Section C2, oily wastewater is collected in a separate compartment of the pump trucks. At the facility, the oily wastewater is tested for halogens using the Dexsil test kit to ensure that it is non-hazardous and transferred to the Frac Tank, SWMU No. 7, for primary separation of oil from water and settling of sludge. The wastewater is transferred from the Frac Tank to a storage tank for temporary storage until the wastewater is pumped to the T-7 Tank for treatment, described in Section II.C.2, by phase separation. The reclaimed oil is blended according to customer specifications and sold to asphalt companies for use as burner fuel. The treated water is tested for TCLP contaminants before being transported to the Cliff Berry industrial wastewater facility. The term "oily wastewater" is applied only to non-hazardous oily wastewater based on TCLP tests of petroleum-based contaminants in the waste stream or generator technical knowledge of the waste stream, if the source and extent of contamination is known.

3. TCLP Toxic Wastewater:

Historically, TCLP-toxic wastewater, having waste codes of D004 through D043, were treated in the former wastewater treatment tank located in the Storage Tank Farm. Sources of the toxic wastewater include fuel storage tanks, underground pits, industrial facilities, and water contaminated by insecticides, pesticides, and herbicides. Ignitable, corrosive, or reactive wastewater was not accepted at the facility for treatment. This waste stream is no longer managed at the facility.

4. Waste Antifreeze:

Historically, waste antifreeze was collected from sources such as auto dealerships using the third compartment of the company pump trucks. At the facility, the waste antifreeze was discharged into the antifreeze storage tank located in the Storage Tank Farm (SWMU No. 2) to await transportation to an ethylene glycol recycling facility or wastewater treatment plant. Wastewater contaminated by antifreeze was not treated at the facility due to the high chemical oxygen demand (COD) for ethylene glycol. Currently, waste antifreeze is stored temporarily in the Hazardous Waste Drum Storage Area (SWMU No. 3).

5. Spent Mineral Spirits and Lacquer Thinner Liquids:

Drums of waste mineral spirits and lacquer thinner are collected from generators such as paint shops in a box trailer that is permitted to haul hazardous wastes. Mineral spirits are a flammable liquid with hazardous waste code D001. The composition of the waste is 95% to 100% mineral spirits and 0% to 5% water. Lacquer thinner wastes are a flammable liquid with hazardous waste codes D001, F003, F005, and D035. Lacquer thinner waste is comprised of 20% to 25% of acetone, MEK, toluene, and xylene and 0% to 5% of paint pigments. These wastes are stored in the Hazardous Waste Drum Storage Area (SWMU No. 3) until transferred to a disposal facility such as Chemical Conservation Corporation in Valdosta, Georgia, where the waste is used as industrial fuel or recycled into new products.

6. Paint Wastes and Other Hazardous Wastes:

Drums of liquid and solid paint wastes are collected from generators such as paint shops in a box trailer permitted to haul hazardous wastes. Paint waste contains paint pigments, MEK, acetone, xylene, and toluene and as such is flammable. The waste may be classified as waste codes D001, D035, F003, and F005. Drums of paint wastes and other hazardous wastes, such as compressor refrigerant oils containing chloroflourocarbons, are temporarily stored in the Hazardous Waste Drum Storage Area until shipped off-site for processing or disposal. Ignitable wastes are stored in approved drums, segregated from the rest of the wastes and inspected daily for closed lids, pressure buildup, bulges, and rust.

7. Hazardous Sludge and Soils:

Perma-Fix provides transfer and temporary storage services for hazardous sludge and soils generated from environmental remediation projects and manufacturing facilities. The wastes are temporarily stored in the Hazardous Waste Drum Storage Area until shipped to a permitted disposal facility.

8. Petroleum Contact Wastewater:

Generators of wastewater subject to the petroleum contact wastewater (PCW) rule under 62-740 F.A.C. (virgin fuel and water mixture) are required to utilize analytical methods or process knowledge to demonstrate that the PCW does not contain hazardous constituents above the levels present in the petroleum source of the PCW or other hazardous constituents not normally present in the PCW. PCW wastewater is processed using the same procedures as oily wastewater.

9. Non-Hazardous Sludge and Solids:

Sludge and solids are regarded as non hazardous wastes, if they pass TCLP tests or if they are not listed hazardous wastes. Non-hazardous sludge and solids include emulsified oil-water mixtures, heavy oils, and petroleum-contaminated soils and sludge. Sludge and solids are tested for TCLP constituents after they are transferred from the pump truck into a holding tank at the facility. Sludge, generated as waste oil sediments in the bottom of the storage tank, is also transferred to a holding tank after being tested for TCLP. Non-hazardous sludge is pumped from the holding tank into the T-7 Tank for processing to recover oil. The recovered oil is blended according to specifications and delivered to customers. Residual sludge from the T-

7 Tank is temporarily stored in the Hazardous Waste Drum Storage Area for shipment off-site for disposal.

10. Off-Specification Commercial Chemical Products:

Commercial chemical products are materials that were never used and are in their original packaging or container. Off-specification products are commercial materials that are no longer suitable for their original purpose due to chemical degradation or contamination with non-hazardous materials (e.g. water, dirt, etc.). An example of an off-specification product is waste fuel. Off-specification products do not include wastes or spent materials which were generated through the use of the product or from a manufacturing or industrial process. Off-specification products are stored at two units at the facility. Small cans of off-specification motor/equipment oils, fuels, and degreasers were stored at the Maintenance Area Storage Unit (SWMU No. 10). Off-specification caustic soda was also stored at the Drum Storage Area (SWMU No. 9). These off-specification materials were not destined for reclamation at the facility but instead were intended to be shipped to the Perma-Fix facility in Gainesville, Florida.

This description of waste management practices for off-specification products was abstracted from the used oil processor permit application, Reference 1. No off-specification commercial chemical products other than the two described, off-specification motor/equipment oils, fuels, degreasers and caustic soda have been accepted by the facility. A micro filtration reclamation process was included in the description of waste management practices, Reference 1, but is not available at the facility.

11. Empty Drums That Previously Contained Hazardous Waste:

A drum that has held a hazardous waste listed in 40 CFR 261.31, 261.32, or 261.33(e) is considered empty if all the waste in the drum has been removed to the fullest extent possible using practices such as pumping, pouring, and aspirating, and no more than one inch of residue remains in the bottom of the container. A drum that has held an acutely hazardous waste listed in 40 CFR 261.31, 261.32 or 261.33(e) is empty if all the waste in the drum has been removed to the fullest extent possible and triple-rinsed using a material (e.g. solvent) capable of effectively removing the residual waste.

Empty drums that previously held hazardous wastes were triple-rinsed by the generators and transported to Perma-Fix. At the facility, the drums, already emptied and cleaned prior to receipt at Perma-Fix, were stored in the Empty Drum Storage Area (SWMU No. 11) to await shipment to industrial users.

12. Lead Acid and Ni-Cd (Nickel/Cadmium) Batteries:

Pursuant to 40 CFR 261.6(a)(2)(iv), spent batteries (e.g. automotive batteries) destined for reclamation are subject to regulation under 40 CFR 266, Subpart G in lieu of the hazardous waste regulations under 40 CFR 261. Historically, spent lead acid batteries were overpacked in 55-gallon drums and temporarily stored in the Hazardous Waste Drum Storage Area. Leaking batteries were managed as D002 hazardous waste. Ni-Cd batteries were managed as D006 hazardous waste. Off-site shipment is to the Perma-Fix facility in Gainesville, Florida.

E. REGULATORY APPLICABILITY AND HISTORY:

Perma-Fix, then known as IRR, began operations at the Davie site on January 18, 1985. On or before September 24, 1990, IRR submitted a Part A permit application to FDEP for the treatment and storage of hazardous waste at the facility. Subsequently, the U. S. EPA granted an interim status to the facility on September 25, 1990. On November 30, 1990, IRR submitted a revision to the Part A application. Almost a year later, on October 10, 1991 the Department notified IRR that a temporary operating permit (TOP) was required to continue operations at the site because of changes in regulations. Consequently, IRR was required to submit a Part B permit application.

The Part B permit application (Reference 2) was submitted on October 29, 1991 by IRR. After this application was determined incomplete by the Department, IRR submitted a revised application (Reference 3) on January 19, 1993. But the facility soon underwent a change of ownership and Perma-Fix became the new proprietors of the facility in early 1995. On December 7, 1995 Perma-Fix withdrew the Part B permit application with the Department's concurrence. Perma-Fix based this action on the fact that it did not intend to continue accepting hazardous wastes for processing at the facility. However, the Department made Perma-Fix aware of the fact that exemption from RCRA regulations under 40 CFR Part 260.1 was not applicable to the treatment system at the facility. Subsequently, the facility submitted a used oil processing facility permit application (Reference 1) to the Department on April 15, 1997. The state used oil processor permit, Appendix G, was issued on November 18, 1997.

A compliance inspection was conducted at the facility on April 4, 1993. A copy of the Department consent order resolving the violations found during the compliance inspection is included in Appendix C. A second compliance inspection was conducted on December 27, 1995 (Reference 4).

In a letter on September 9, 1996, FDEP informed Perma-Fix that the facility was subject to the RFA process and that a VSI was planned for October 29, 1996 at the facility. However, prior to the VSI date, a spill of several thousand gallons of wastewater occurred at the facility in October 1996, releasing wastewater from the storage tanks to the ground. As a result of the spill, Perma-Fix requested and received Departmental approval to postpone the VSI indefinitely. The VSI was subsequently rescheduled and conducted on May 6, 1997, after the facility completed preliminary remedial actions in the spill area, which included removal of contaminated soils. The remedial actions were conducted under the direction of the Broward County DNR Program.

The facility has conducted a contamination assessment at SWMU No. 1 (Spill Area), also under the direction of the Broward County DNR. Groundwater sampling was conducted at the unit as part of the contamination assessment. Analytical results (see Appendix F) from the groundwater sampling indicate apparent surficial aquifer groundwater contamination in the form of a plume of vinyl chloride. A Superfund site investigation has also been conducted in the vicinity of the Perma-Fix facility under the direction of the EPA. The purpose of the Superfund site investigation is to investigate releases from Florida Petroleum Reprocessors, which is a Superfund site located about three quarters of a mile northwest of the Perma-Fix site. The Superfund investigation has identified a plume of chlorinated VOCs in the deep zone aquifer stretching from the Superfund site to the Perma-Fix facility.

F. ENVIRONMENTAL AND DEMOGRAPHIC SETTINGS:

1. POPULATION:

The population of Davie was reported as 47,217 in the publication Census 90 published by the U. S. Department of Commerce (Reference 8).

2. TOPOGRAPHY AND DRAINAGE:

According to information provided in a permit application by IRR, the facility lies within a 100-year flood plain (contingency plan measures, in the event flooding is anticipated, are summarized in Section II-B). The natural topography of the area is nearly flat, however the site-specific topography has been re-shaped by various structures constructed at the site. Protection from stormwater flooding is provided by the facility's dry retention pond. The pond, which measures 111 feet long, 61 feet wide and about 2 feet deep, holds about 12,000 cubic feet of water. Some of the stormwater from the site is discharged to a low-lying area located in the northwest corner of the site. The South River Canal, located less than a half mile south of the facility, serves as a receptor for stormwater from the area of the site. In addition to the protection provided by the canal and retention pond, structural features at the facility (containment walls, etc.) also help mitigate the effects of flood damage. The tank farm is surrounded by two containment walls. In the past, stormwater that fell on the concrete parking lot collected in a series of 3-inch trenches cut into the concrete and drained to the grassy stormwater retention pond, designed to contain runoff from a 3-year, 1-hour rainfall. Under normal conditions, a 10-year, 24-hour storm will be contained at the site.

Potable water is supplied to the facility by the City of Davie, Florida (Reference 3)

3. CLIMATE:

Climate at the site is representative of that of Broward County and consists of warm, humid summers and mild, dry winters (Hydrologic Almanac of Florida, Reference 9). The average summer temperature is 81°F and the daily summer temperature ranges from 68°F to 92°F. The average winter temperature is 62°F, and daily winter temperature ranges from 48°F to 75°F. The average annual rainfall is 55 inches, with about sixty percent (60%) occurring from June through September. The summer rainfall is characterized by shorter duration, high occurrence of lightning, and high intensity rainfall (up to 2-3 inches in one to two hours). The winter rainfall is characterized by longer duration (24 hours or longer), fewer lightning occurrences, and low intensity rainfall (up to 2-3 inches or less per day). The one-year, twenty-four hour rainfall event has a high ranging from 4 to 4.5 inches.

4. REGIONAL GEOLOGY AND HYDROGEOLOGY:

The two principal aquifers in Broward County are the Surficial aquifer system and the underlying Floridan aquifer system (Reference 9). The surficial aquifer is an unconfined aquifer with a water table that fluctuates within a few feet of the land surface. The

Floridan aquifer system is a confined artesian aquifer. The Hawthorn Formation, of Miocene Age, forms the relatively impermeable boundary separating the two aquifers. The Floridan aquifer system in Broward County contains non-potable water and is encountered at considerable depth (approximately 950 feet). It has no direct impact on the hydrogeologic setting for this report.

The Surficial aquifer system consists of Pliocene and Pleistocene sediments and rocks that overlie the limestones and marls of the Hawthorn Formation. The Surficial aquifer system is approximately 320 feet thick in the subject property area. The most transmissive and highly permeable upper part of the Surficial aquifer system constitutes the Biscayne aquifer. The formations that comprise the Biscayne Aquifer include the upper part of the Tamiami Formation, Fort Thompson, Key Largo Limestone, Anastasia Formation, Miami Limestone (Miami Oolite Facies), and the Pamlico Sands. It is from the Biscayne Aquifer that all the major public water supply well fields in Broward County derive their groundwater.

The groundwater in the area of the subject property is classified as G-II. This classification refers to groundwater designated for potable use, which has a total dissolved solids content of less than 10,000 milligrams per liter (Section 62-3.403; Water Quality Standards, Classification of Groundwater, Usage Reclassification).

The site-specific geology was determined from soil (monitoring well) cuttings. The sediment and rock samples recovered were examined for composition and texture. The geology of the site down to 12 feet consists predominantly of fine to medium quartz sands of the Pamlico Sands and Anastasia Formation. These sands are interbedded with thin layers of limestone of low or moderate permeability. The fine to medium-grained Pamlico Sands and Upper Anastasia Formations of the subject property generally have hydraulic conductivities in the 10 to 100 ft/day range. The Surficial aquifer system in the vicinity of the site is approximately 320 feet thick and has transmissivity between 300,000 and 1,000,000 ft²/day.

Lithologic logs from some boreholes constructed at the site are included in Appendix D. The logs depict a sequence of limestone, sand, and limestone in the shallow formations from 0 to 12 feet below land surface (bls.).

5. THREATENED AND ENDANGERED SPECIES: ***(Extracted from Reference No. 7)***

Vascular Plants:

1. Golden Leather Fern
2. Curtiss' Milkweed
3. Bird's Nest Spleenwort
4. Slender Spleenwort
5. Catopsis Floribunda
6. Large-Flowered Rosemary
7. Longleaf Crabgrass
8. Narrow-Leaved Carolina Scalystem
9. Night-Scented Orchid

10. Coastal Vervain
11. Broad-Leaved Spiderlily
12. Nodding Pinweed
13. Twinberry
14. Fall-Flowering Ixia
15. Burrowing Four-O'Clock
16. Tiny Polygala
17. Beach-Star
18. Necklace Pod
19. Banded Wild-Pine
20. Carter's Warea

Reptiles:

1. Loggerhead Turtle
2. Green Sea Turtle
3. Gopher Tortoise
4. Florida Scrub Lizard
5. Eastern Indigo Snake

Birds:

1. Coopers Hawk
2. Limpkin
3. Great White Heron
4. Florida Scrub Jay
5. Great Egret
6. Piping Plover
7. Little Blue Heron
8. Hairy Woodpecker
9. Brown Pelican
10. Burrowing Owl

Mammals:

1. Everglades Mink
2. Florida Mouse
3. West Indian Manatee
4. Florida Black Bear

6. EXPOSURE POTENTIAL:

TARGET POPULATIONS:

The immediate vicinity of the site is used for industrial purposes. As a result, the exposed populations are workers and visitors to the area. Furthermore, endangered species in the area may be exposed to contaminated groundwater discharging to canals and other surface water bodies.

RECEPTOR INFORMATION:

Because no surficial soil contamination remains at the site, the potential means of exposure to workers and visitors is by dermal contact with contaminated groundwater. This is possible by exposure to contaminated groundwater discharging to canals and surface water bodies in the area. On-site remediation workers may also be exposed to contaminated groundwater pumped to the surface. Endangered species may also be exposed to contaminated groundwater discharging to canals and surface water bodies.

III. SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONCERN (AOCs)

Twelve (12) Solid Waste Management Units (SWMUs) and one (1) Area of Concern (AOC) were identified at the Perma-Fix facility as a result of the VSI and PR. Table 1 is a summary of information related to the identified SWMUs and the AOC. Appendix A contains the SWMU and AOC data sheets, consisting of information and detailed descriptions of the units. Appendix B consists of photographs of the SWMUs and AOC at the facility taken during the VSI.

The SWMUs and the AOC identified at Perma-Fix are:

<u>SWMU #</u>	<u>SWMU NAME</u>
1)	Spill Area
2)	Storage Tank Farm
3)	Hazardous Waste Drum Storage Area
4)	Retention Pond
5)	Municipal Trash Containers
6)	Roll-off Container (Inside Secondary Containment Area)
7)	Frac Tank
8)	Sludge Gondolas (Inside Containment Area Near Fence)
9)	Drum Storage Area
10)	Maintenance Area Storage Unit
11)	Empty Drum Storage Area
12)	Loading and Unloading Area for Tankers
<u>AOC #</u>	<u>AOC NAME</u>
1)	Northwest Gravel Parking Area

IV. SUMMARY AND RECOMMENDATIONS

Twelve (12) SWMUs and one (1) AOC were identified at the Perma-Fix facility as a result of the VSI and PR at Perma-Fix.

The facility has conducted preliminary remediation of surficial soils and assessment of contamination in the shallow aquifer at the site. The contamination assessment was conducted in order to investigate releases from the 1996 spill at the tank farm. The results of the contamination assessment indicate the presence of a vinyl chloride plume in the shallow aquifer. A RCRA Facility Investigation has been recommended to assess the contaminant plume.

A plume of chlorinated VOCs was also detected in the deep zone aquifer, during a Superfund investigation, of an area encompassing the Florida Petroleum Reprocessors and Perma-Fix facilities. The EPA has determined that this plume was most probably associated with the Florida Petroleum Reprocessors site and will continue to be addressed under the Superfund Program.

Confirmatory Sampling is recommended for the Retention Pond (SWMU No. 4). This unit has historically received stormwater runoff from the concrete-paved areas at the facility. The stormwater may sometimes carry contaminants to the pond.

APPENDIX A
SWMU/AOC DATA SHEETS

SWMU DATA SHEET

Page 1 of 2

SWMU NUMBER: 1

PHOTOGRAPH NO.: 1, 17

SWMU NAME: Spill Area

TYPE OF UNIT: Storage Spill Area

SPILL DATE: October 14, 1996

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.): The unit encompasses an area measuring approximately 600 ft. by 50 ft. located in the eastern portion of the site which was affected by the October 1996 wastewater spill. The area extends from the north property fence to the south property fence, and from the storage tank farm to the east property fence. This includes the extreme northeast portion of the adjoining PMI Industries facility which was also affected by the spill.

The spill area is currently covered by grassy sandy soils and gravel. These are fill materials placed in the unit after contaminated soils were excavated during preliminary remedial activities. The facility has installed groundwater monitoring wells in the spill area for use in assessing contamination. An underground French drain system located within this area was also removed during the preliminary remedial operations. The facility has stated that no evidence was found indicating that the French drain conveyed spilled wastewater outside the unit.

A review of the analytical data (Reference 6) from the contamination assessment at this unit indicates the presence of petroleum/used oil constituents and, in addition, a plume of vinyl chloride in the shallow aquifer. The shallow aquifer sampling well locations and summary of the groundwater monitoring results are included in Appendix F. The monitoring wells were screened from 1.5 ft. to 10.0 ft. below ground surface (bls). The lone deep well at the site was screened from 23.5 ft. to 28.5 ft. bls and does not show any contamination.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Waste oil, oily wastewater, petroleum contact wastewater, and off-specification Bunker C Fuel Oil.

RELEASE PATHWAYS:

Air (H) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

SWMU DATA SHEET

Page 2 of 2

SWMU NO. 1

HISTORY AND/OR EVIDENCE OF RELEASE(S): Yes

RECOMMENDATIONS:

No Further Action	()
Confirmatory Sampling	()
RFI Necessary	(x)

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The site sampling data included in Appendix F indicates the existence of a vinyl chloride plume in the shallow aquifer in the vicinity of this unit. An RFI is required to further address this plume.

SWMU DATA SHEET

Page 1 of 2

SWMU NUMBER: 2

PHOTOGRAPH NO.: 1, 2, 3, 11

SWMU NAME: Storage Tank Farm

TYPE OF UNIT: Above-Ground Storage Tank

PERIOD OF OPERATION: 1985 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIAL OF CONSTRUCTION, ETC.):

The Storage Tank Farm is located in the southeastern portion of the facility. The tank farm currently consists of 23 above-ground storage tanks and includes the Hot Oil Tank (Tank No. 7) currently used for the treatment of oily wastes and wastewater (see Appendix E). A new tank farm was built by the facility just north of the Storage Tank Farm. However, the new tank farm is not yet in service. The Storage Tank Farm is surrounded by two concrete containment wall systems. The primary containment wall system is 32 inches high and was reinforced with 36 vertical inches of rebar anchored six inches into the concrete floor. The inner walls of the primary containment system are sealed with Rust Oleum 9578 Coal Tar Epoxy, a material that is resistant to hazardous wastes. The primary containment wall system surrounds the tank farm. The secondary containment wall system surrounds the primary containment wall system, the Loading and Unloading Area for Tankers (SWMU No. 12), the Rolloff Container (SWMU No. 6), and the Frac Tank (SWMU No. 7). The secondary containment walls are 18 inches high and are also anchored with rebar. These walls protect the tanks and piping and form a barrier against flooding from stormwater. The floors of the tank farm and Loading and Unloading Area for Tankers are constructed of reinforced concrete coated with Rust Oleum 9578 Coal Tar Epoxy. Rainwater or any release to the concrete in the Loading/Unloading Area and Storage Tank Farm is directed by gravity to a sump within the tank farm and pumped into a holding tank.

The storage tanks located within the containment area were constructed of steel and anchored to the concrete floor with 3/4 inch thick by 8-inch long expansion anchors. Three-inch thick steel buttresses welded to the tanks about three feet above the bottom of the tank also anchor the tanks to the concrete floor. Tanks higher than 10.5 feet are linked together at the top by 3 inch by 3 inch by 1/4-inch L-shaped steel plates. Liquid inside the tanks help stabilize the tanks by functioning as a ballast that adds weight to the tank structure. The storage tanks have float gauges for

SWMU DATA SHEET

Page 2 of 2

SWMU NO. 2

checking the level of materials inside. All storage tanks are interconnected by overflow pipes to prevent overflows. All feed pipes to the tanks are 2-inch or 3-inch diameter steel pipes with welded joints. Overflow pipes are Schedule 40 PVC pipes. All piping manifolds are within the containment walls, are above ground, and are controlled by valves, which can divert flow from one tank or pipe to another. Pipes and valves are inspected daily and maintained on site. Any spills or leaks are pumped from collection sumps in the tank farm into holding tanks for treatment.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Wastes managed currently and historically in the unit include used oil, oily wastes, and oily wastewater.

RELEASE PATHWAYS:

Air (M) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE (S): Spill from this area is responsible for contamination in SWMU No. 1.

RECOMMENDATIONS:

No Further Action (x)
Confirmatory Sampling ()
RFI Necessary ()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The release from tanks within this unit resulted in SWMU No. 1. Since this unit has a concrete floor and containment walls, direct contamination of soils and groundwater beneath the unit most probably did not occur. Furthermore, remedial actions undertaken at SWMU No. 1 will include any contaminated groundwater beneath this unit.

A plume of vinyl chloride has been detected in the shallow aquifer in the vicinity of this unit (see Appendix F). This plume will be addressed under the RFI recommended for SWMU No. 1.

SWMU DATA SHEET

Page 1 of 2

SWMU NUMBER: 3

PHOTOGRAPH No.: 4

NAME OF SWMU: Hazardous Waste Drum Storage Area

TYPE OF UNIT: Hazardous Waste Drum Accumulation Unit

PERIOD OF OPERATION: 1992 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIAL OF CONSTRUCTION, ETC.): The Hazardous Waste Drum Storage Area is located just north of the secondary containment for the Loading and Unloading Area for Tankers (SWMU No. 12). The unit is comprised of six storage bays (numbered 1 to 6). Bays 1, 2, 3, 5, and 6 are steel structures, each having steel floors measuring 10 feet long by 6 feet wide surrounded by 1 foot high steel containment berms. Bay 4 has a concrete floor measuring 8 feet long by 6 feet wide surrounded by a 32-inch high concrete containment berm. The concrete floor and berm in Bay 4 are sealed with Rust Oleum 9578 Coal Tar Epoxy, a material that is resistant to hazardous wastes. The containment berm for Bay 4 consists of four layers of eight-inch thick concrete block reinforced with steel rods. An above-ground steel storage tank, containing virgin diesel fuel used in company trucks, is located within the containment area of Bay 4. The containment structures surrounding the six bays contain spills and leaks within the storage bays and protect containers of waste and the storage tank against damage from trucks or container transfer equipment.

Bays 1, 2, 3, 5, and 6 are used for the temporary storing of containers of wastes waiting to be transferred to either the Perma-Fix facility in Gainesville or other locations. These are mostly wastes collected from customers as transfer wastes. Incompatible wastes are stored in separate bays. Drums are set on one-inch high steel rails to facilitate movement of the drums and detection of leaks from the drums. During the VSI at the facility, the five bays were being utilized as follows: (1) drums of non-hazardous oil filters were stored in Bay 1; (2) flammable hazardous wastes were stored in Bays 2 and 3; (3) non-hazardous filter debris were stored in Bay 5; and (4) non-hazardous petroleum related sludge was stored in Bay 6. Approximately 35 drums of wastes are stored in the five bays at any time awaiting shipment to an off-site location.

SWMU DATA SHEET

Page 2 of 2

SWMU NO. 3

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: WASTES managed currently and historically in the unit include non-hazardous oily wastes and wastewater, hazardous wastewater (D004 through D043), spent antifreeze (D008, D018, D039, D040), spent mineral spirits (D001), paint waste (D001, D006, D007, D008), hazardous sludge and solids (D001 through D043), lead-acid batteries, Ni-Cd batteries (D006) and non-hazardous sludge.

RELEASE PATHWAYS: Air (M) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (M)

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS: No Further Action (x)
Confirmatory Sampling ()
RFI Necessary ()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: Wastes stored in this unit are containerized in drums. Five of the six bays are steel structures with adequate containment for spills. The inside of the one bay constructed of concrete is coated with an epoxy material and also has adequate containment for spills. Historically, ignitable wastes such as petroleum contaminated sludge and waste mineral spirits were also stored in the unit.

The risk of accidental fire or explosion in the container storage area is minimized by; (1) maintaining adequate aisle space and easy access to containers, (2) using special drum handling equipment which allows one person to move drums safely from the storage area onto trucks, (3) storing no more than thirty five drums on site, (4) daily inspection of containers for signs of leaks and increases in temperature and pressure, (5) good ventilation around the drums.

In order to establish operating guidelines for managing wastes that may be incompatible, waste streams are classified into one of six categories which are deemed incompatible with each other: (1) D004 through D011 (metals), (2) D012 through D017 (insecticides and herbicides), (3) D018 through D043 (organics), D001 (ignitability), D002 (corrosivity), D003 (reactivity). The barriers separating the storage bays help prevent cross contamination of incompatible wastes in separate bays.

Page 1 of 2

PHOTOGRAPH NO.: 5, 6

TYPE OF UNIT: Surface Impoundment

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.): The unit is a grassy retention pond located in the southwest corner of the property and specifically designed to accommodate runoff from a 3-year, 1-hour rainfall. The pond is 111 feet long, 61 feet wide and about 2 feet deep and holds approximately 12,000 cubic feet of stormwater.

Historically, stormwater from the paved parking lot west of the tank farm and from the concrete driveway was allowed to collect in three-inch trenches cut into the concrete and discharge into the on-site retention pond through drainage channels located through the 18-inch high perimeter walls of the pond. Rainwater runoff contaminated by petroleum products released from automobiles and stacked tires was allowed to flow from the parking lot to the retention pond. Currently, rainwater runoff also enters the retention pond from the drainage channel connected to the concrete entrance driveway. During the VSI, the pond was dry.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Stormwater runoff

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

HISTORY AND/OR EVIDENCE OF RELEASE(S): Pollutants may have been transported to the unit by rainwater runoff.

RECOMMENDATIONS:

No Further Action	()
Confirmatory Sampling	(x)
RFI Necessary	()

SWMU DATA SHEET

Page 2 of 2

SWMU NO. 4

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: Historically, the unit has received stormwater runoff from the concrete-paved areas at the facility. The stormwater runoff may have been contaminated. Monitoring wells existed in the vicinity of the pond. However, there were no indications whether the wells had been sampled in the past. A CS is required to determine if stormwater has historically carried contaminants to the pond.

Review of analytical data from Florida Petroleum Reprocessors, which is a Superfund site located north of the Perma-Fix site, indicates the existence of a plume of chlorinated VOCs in an area including the Superfund site and Perma-Fix facility (see Appendix F). This plume exists in the deep groundwater aquifer (50 to 140 ft.), and would continue to be addressed under the Superfund Program.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 5

PHOTOGRAPH NO.: 7, 8

NAME OF SWMU: Municipal Trash Containers

TYPE OF UNIT: Domestic Waste Container Accumulation Unit

PERIOD OF OPERATION: 1985 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.): The unit consists of two steel rolloff trash containers. One rolloff container, about twenty-two feet long with a capacity of approximately 20 cubic yards, is located at the northeast corner of the parking lot. The second container, approximate capacity of 3 cubic yards, is located on the concrete parking lot next to the entrance driveway to the facility. The second container is also located next to the Empty Drum Storage Area.

The containers are used for collecting municipal trash generated at the site. Non-municipal wastes are not deposited inside the containers.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Municipal solid waste, including scrap metal derived from facility maintenance operations and waste derived from office operations.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS: No Further Action (x)
Confirmatory Sampling ()
RFI Necessary ()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: There was no evidence that hazardous wastes or constituents were disposed in the unit.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 6

PHOTOGRAPH NO.: 9

SWMU NAME: Rolloff Container (Inside Secondary Containment Area)

TYPE OF UNIT: Container Waste Accumulation Unit

PERIOD OF OPERATION: January 1997 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.):

The unit consists of one steel rolloff container with a capacity of approximately 20 cubic yards and is lined with plastic. The unit is located in the Loading and Unloading Area for Tankers, next to the Frac Tank. The unit is located in the fourth loading bay of the Loading/Unloading Area. The container is used to store sludge from oily waste and wastewater process operations at the site, while they await shipment to Rinker Materials Company for disposal.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Oily solids and sludge

RELEASE PATHWAYS:

Air (M)	Surface Water (L)	Soil (L)
Groundwater (L)	Subsurface Gas (L)	

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS:

No Further Action	(x)
Confirmatory Sampling	()
RFI Necessary	()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The containers should be covered with plastic. In January 2000, Perma-Fix indicated that the rolloff had been removed and not replaced.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 7

PHOTOGRAPH NO.: 10

SWMU NAME: Frac Tank

TYPE OF UNIT: Waste Treatment Tank

PERIOD OF OPERATION: 1996 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.):

The unit is located inside the containment area for the Loading and Unloading Area For Tankers (SWMU No. 12), next to the rolloff container in the fourth tanker loading bay. The unit consists of one 20,000 gallon steel Frac Tank with manhole entry ports on the side and top. The Frac Tank facilitates loading and unloading of wastewater from vacuum trucks. The wastewater pumped into the Frac Tank from the vacuum truck is processed to separate sludge from liquid. The liquid is pumped into a storage tank within the tank farm and the sludge is discharged to the Rolloff Container (SWMU No. 6) for delivery to Rinker Materials Company. During the VSI, the tank was inspected and appeared structurally viable. There was no evidence of a release from the unit.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Oily wastewater, oily sludge, and oily solids.

RELEASE PATHWAYS:

Air (M)	Surface Water (L)	Soil (L)
Groundwater (L)	Subsurface Gas (L)	

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS:

No Further Action	(x)
Confirmatory Sampling	()
RFI Necessary	()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The unit is a tank treatment unit, and there was no evidence of a release from the unit.

Page 1 of 1

PHOTOGRAPH NO.: 12

TYPE OF UNIT: Container Waste Accumulation Unit

PERIOD OF OPERATION: 1996 - Present

The unit includes two, one-cubic-yard steel gondolas located on the concrete floor just outside the south wall of the Loading And Unloading Area for Tankers (SWMU No. 12) containment system. The gondolas are equipped with rails to facilitate moving them with a forklift.

The gondolas are used to collect oily sludge, oily rags, oily papers, and other oily debris removed from oily wastes and oily wastewater processed at the site. During the VSI, it was observed that the gondolas were lined with plastic to prevent liquid from leaking through the container to the concrete floor. The contents of the gondolas are shipped to Rinker Materials Company for disposal.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Oily sludge, oily rags, oily papers, and other oily debris.

RELEASE PATHWAYS:

Air (M)	Surface Water (L)	Soil (L)
Groundwater (L)	Subsurface Gas (L)	

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS:	No Further Action	(x)
	Confirmatory Sampling	()
	RFI Necessary	()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The gondola(s) should be covered with plastic.

Page 1 of 1

PHOTOGRAPH NO.: 13

TYPE OF UNIT: Drum Storage Unit

PERIOD OF OPERATION: 1985 - Present

The unit is a drum storage area, approximately 4 foot by 16 foot in size, located on a concrete floor used for storing raw materials originally intended for use in the facility's wastewater treatment processes. However, the materials were never used for their original purpose and have become off-specification materials and a waste. The materials will eventually be shipped to the Perma-Fix facility in Gainesville. The unit is located along the south property fence, outside the Loading and Unloading Area for Tankers containment system. The unit is just west of SWMU No. 8. The drums were stored on wooden pallets placed on the concrete floor. No evidence of spills were observed during the VSI.

Caustic soda, originally to be used for wastewater treatment, that has become a waste.

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: The materials are a solid waste pursuant to 40 CFR 261.2.

Page 1 of 1

PHOTOGRAPH NO: 14

TYPE OF UNIT: Container Storage Unit

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.):

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Off-specification motor/equipment oils, fuels, and degreaser.

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

A-15

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 11

PHOTOGRAPH NO.: 15

SWMU NAME: Empty Drum Storage Area

TYPE OF UNIT: Drum Storage Unit

PERIOD OF OPERATION: 1985 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.): THE unit consists of a 10 feet by 10 feet section of the paved concrete parking lot used for storing empty drums that previously contained wastes. The unit is located in the west end of the concrete parking lot near the entrance driveway to the facility. The unit is also located next to one of the Municipal Trash Containers (SWMU No. 5). The drums stored in this unit have been triple-rinsed before being delivered to the Perma-Fix facility.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Empty drums that previously contained hazardous wastes, which have been triple-rinsed.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S): None

RECOMMENDATIONS: No Further Action (x)
Confirmatory Sampling ()
RFI Necessary ()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: No further action is required for this unit.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 12

PHOTOGRAPH NO.: 2, 16

SWMU NAME: Loading and Unloading Area for Tankers

TYPE OF UNIT: Waste Transfer Unit

PERIOD OF OPERATION: 1985 - Present

PHYSICAL DESCRIPTION AND CONDITION (INCLUDING DIMENSIONS, SECONDARY CONTAINMENT, MATERIALS OF CONSTRUCTION, ETC.): The unit consists of a concrete dock area, approximately 10 feet by 20 feet, for loading and off-loading tankers and trucks. The unit is located northwest of the Storage Tank Farm inside the secondary containment area. A network of piping, used for loading and unloading tankers, is located inside the unit. The piping is connected to storage tanks inside the tank farm. The floor of the unit is sloped toward sumps to facilitate the collection of spills and rainwater, which are pumped into holding tanks for future treatment. The unit floor and containment walls are in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: All wastes managed in SWMU Nos. 2, 3, 6, 7, and 8.

RELEASE PATHWAYS:

Air (M)	Surface Water (L)	Soil (L)
Groundwater (L)	Subsurface Gas (L)	

HISTORY AND/OR EVIDENCE OF RELEASE(S): Yes

RECOMMENDATIONS:

No Further Action	(x)
Confirmatory Sampling	()
RFI Necessary	()

REFERENCES: Permitting documents, compliance and enforcement documents, RFA informational documents, and VSI notes.

COMMENTS: No action is required for this unit.

Page 1 of 1

PHOTOGRAPH NO.: 18

PERIOD OF OPERATION: 1996 - Present

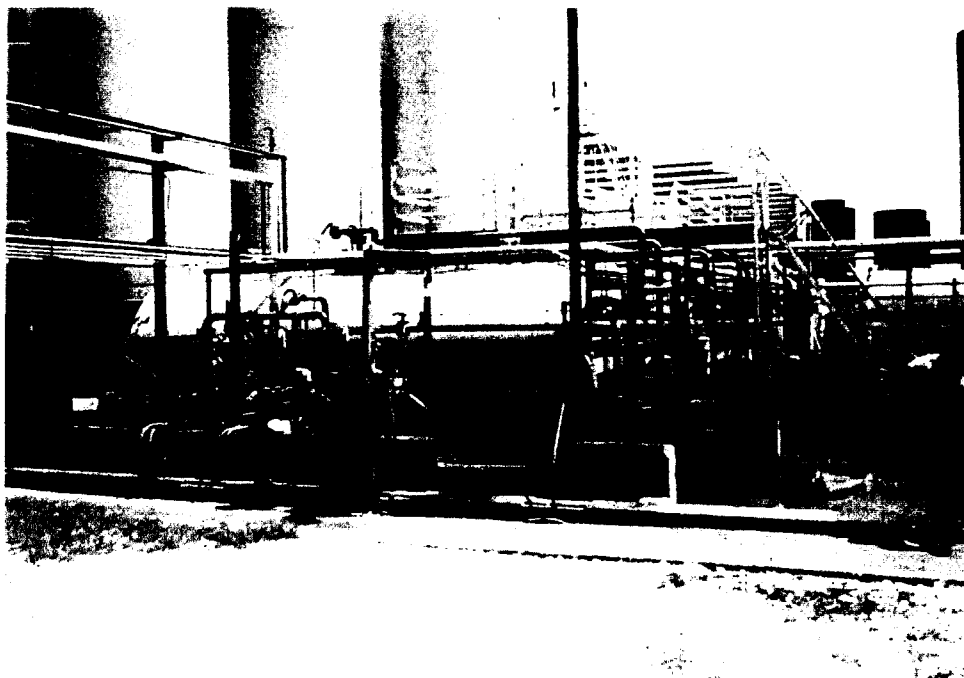
The AOC consists of a grassy area, approximately 120 feet by 140 feet, covered with gravel located in the northwest corner of the facility. The AOC functions primarily as a storage area for machinery and empty tankers. However, since the AOC has a lower elevation than the surrounding areas at the facility, stormwater has a tendency to drain in the area.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

RECOMMENDATIONS:	No Further Action	(x)
	Confirmatory Sampling	()
	RFI Necessary	()

COMMENTS: No evidence of a release exists for this unit.

APPENDIX B
VSI PHOTOGRAPHS



Photograph No. 1, SWMU No. 1, Portion of the Spill Area: The gravel and grass unit is in the foreground. The Tank Farm (SWMU No. 2) is located in the rear.

Perma-Fix

May 6, 1997



Photograph No. 2, SWMU No. 2, Storage Tank Farm: Tanks in the rear are the existing tank farm, tanks on the left are the new tank farm. Loading and Unloading Area for Tankers, SWMU No. 12, is in the foreground.

Perma-Fix

May 6, 1997



Photograph No. 3, SWMU No. 2, Storage Tank Farm: Shown are the steel buttresses supporting tanks and containment walls.

Perma-Fix

May 6, 1997



Photograph No. 4, SWMU No. 3, Hazardous Waste Drum Storage Area: The unit is the area containing drums surrounded by curbing.

Perma-Fix

May 6, 1997



Photograph No. 5, SWMU No. 4, Stormwater Retention Pond: The unit is the grassy impoundment.
Perma-Fix

May 6, 1997



Photograph No. 6, SWMU No. 4, Retention Pond: The unit is the grassy impoundment.
Perma-Fix

May 6, 1997



Photograph No. 7, SWMU No. 5, Municipal Trash Containers: One of the two containers is shown.
Perma-Fix May 6, 1997



Photograph No. 8, SWMU No. 5, Municipal Trash Container: Shown is the second of the two containers located next to the Empty Drum Storage Area SWMU No. 11.
Perma-Fix May 6, 1997



Photograph No. 9, SWMU No. 6, Rolloff Container (inside secondary containment): The container is shown with solids, sludge, and liner inside.

Perma-Fix

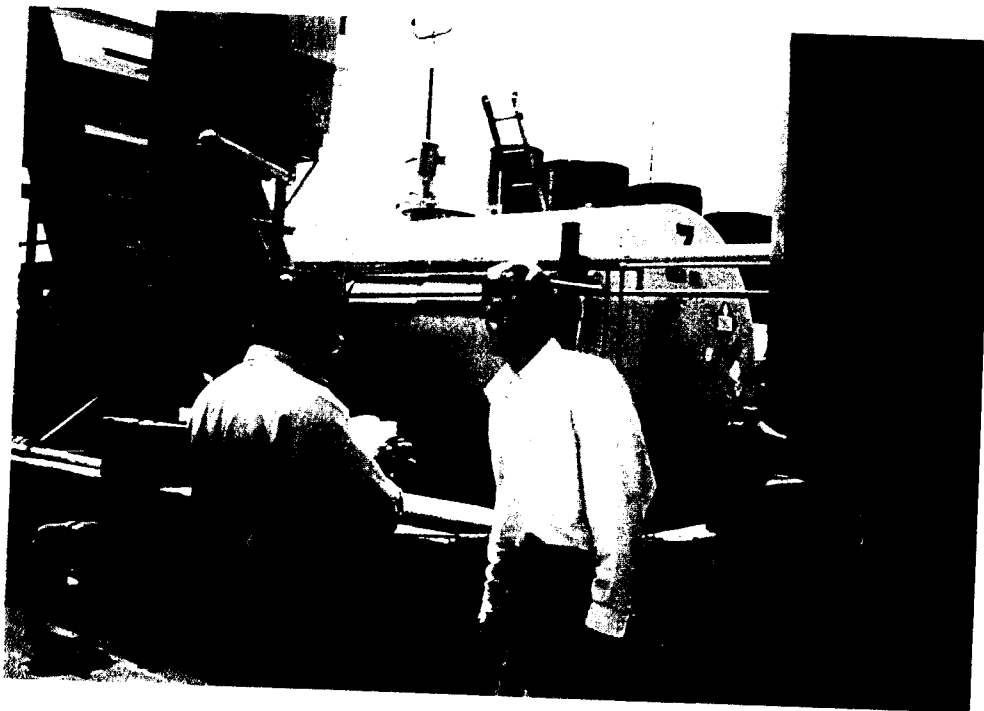
May 6, 1997



Photograph No. 10, SWMU No. 7, Frac Tank: The unit is the red tank bearing the number 244. The unit is located inside the Loading and Unloading Area for Tankers containment area.

Perma-Fix

May 6, 1997



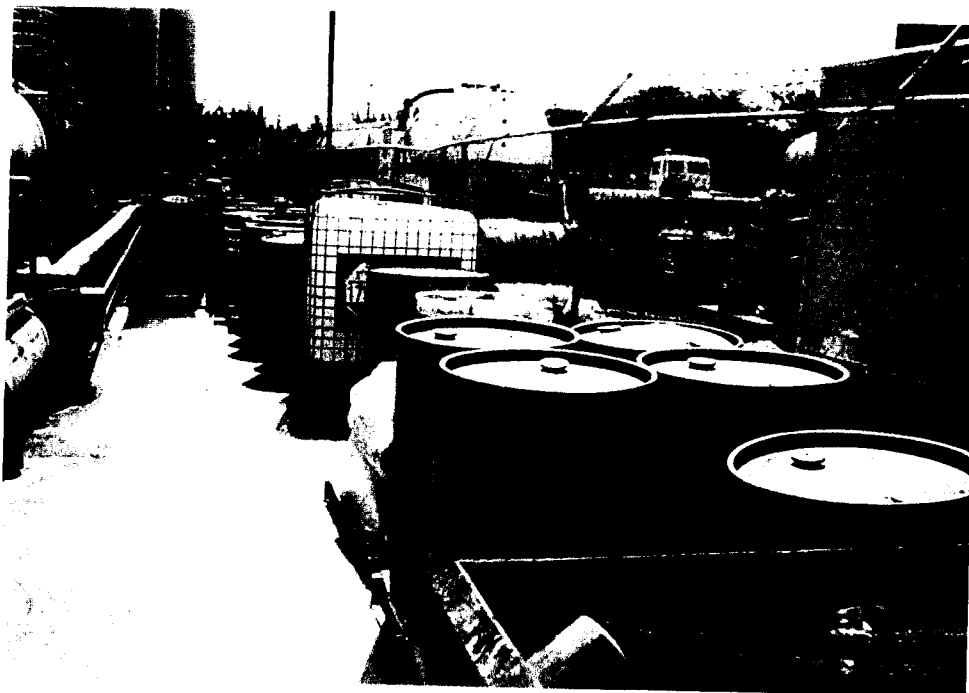
Photograph No. 11, SWMU No. 2, Storage Tank Farm: Tank T-7 (Hot Oil Tank), located in the Storage Tank Farm, is the white tank labeled with the "used oil" sign.
Perma-Fix

May 6, 1997



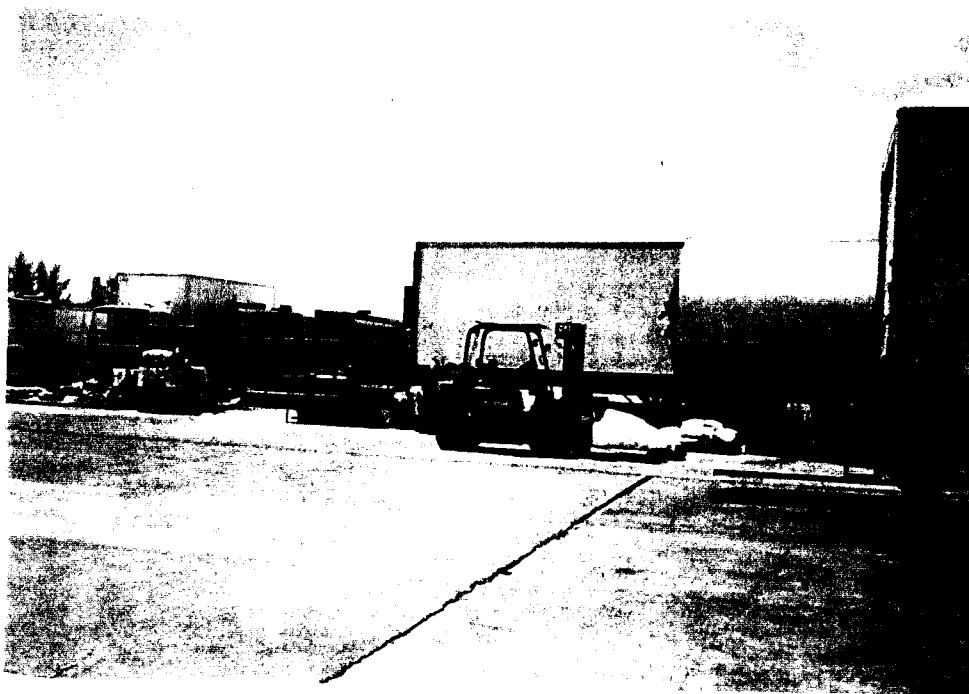
Photograph No. 12, SWMU No. 8, Sludge Gondolas: The two open containers of sludge and debris comprise the unit.
Perma-Fix

May 6, 1997



Photograph No. 13, SWMU No. 9, Raw Materials Drum Storage Area: Off-specification materials are inside the containers located along the fence.
Perma-Fix

May 6, 1997



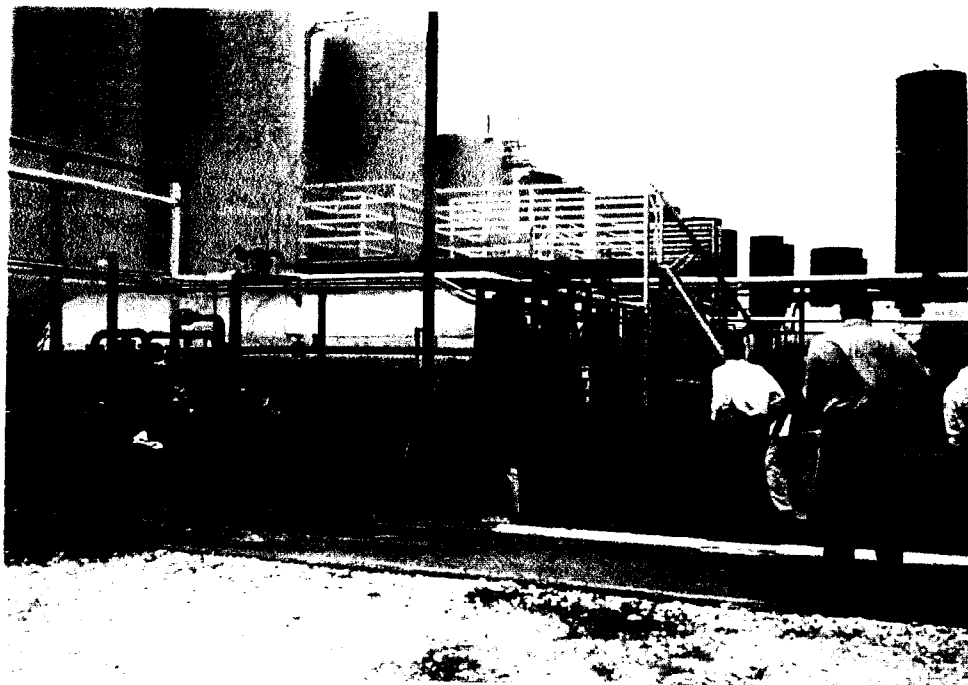
Photograph No. 14, SWMU No. 10, Maintenance Area Storage Unit.
Perma-Fix

May 6, 1997



Photograph No. 15, SWMU No. 11, Empty Drum Storage Area.
Perma-Fix

May 6, 1997



Photograph No. 16, SWMU No. 12, Loading and Unloading Area For Tankers: The network of pipes and valves shown are used to load and unload tankers.
Perma-Fix

May 6, 1997



Photograph No. 17, SWMU No. 1, Spill Area: Grassy area on the left beyond the fence is part of PMI facility affected by the October 1996 spill. Tank and piping on the right is part of Perma-Fix's Storage Tank Farm.

Perma-Fix

May 6, 1997

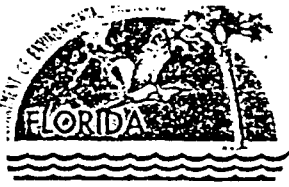


Photograph No. 18, AOC No. 1, Northwest Gravel Parking Lot: Tank unit in the rear area is empty.

Perma-Fix

May 6, 1997

APPENDIX C
FDEP CONSENT ORDER ISSUED TO
INTEGRATED RESOURCE RECOVERY ON MAY 11, 1995



Department of Environmental Protection

Lawton Chiles
Governor

MAY 11 1995

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert Foster, President
Perma-Fix of Fort Lauderdale, Inc., f/k/a
Integrated Resource Recovery, Inc.
1901 NW 67th Place, Suite E
Gainesville, FL 32606

FLD 981 018 773
Broward County
HW-Perma-Fix of
Ft. Lauderdale, Inc.

RE: Settlement by Short Form Consent Order in Case of DEP vs. Integrated
Resource Recovery, Inc.; OGC Case No. 94-3058.

Dear Mr. Foster:

Enclosed for your implementation is the fully executed and filed Consent
Order in the above styled case. Please familiarize yourself with the
compliance dates and terms of the Consent Order so the complete and timely
performance of those obligations is accomplished.

Sincerely,

Carlos R. deAguiar 5/9/95

Carlos Rivero-deAguiar Date
Director of District Management
Southeast District

VK
CRA/VK/vp

cc: Office of General Counsel, DEP Tallahassee
West Palm Beach, DEP File
File, Reporting Coordinator
Broward County, DNRP

Memorandum

Florida Department of
Environmental Protection

New Release Requested: YES ☒
NO ☐

TO: Lea Crusberg
Office of Legislative and Public Affairs, Tallahassee

THROUGH: Larry Morgan
Office of General Counsel, Tallahassee

FROM: Carlos Rivero-deAguilar
Director of District Management, *CPA*
Southeast District

SUBJECT: News Release: Integrated Resource Recovery
Case Name

DATE: MAY 11 1995

Attached is a ☒ Consent Order
☐ Notice of Violation

for the preparation of a news release for the referenced case. This case has been identified as a major enforcement action for the following reasons:

☐ Case requires undertaking significant environmental corrective measures to protect human health or the environment or to abate imminent hazards.

☒ Case involves the imposition of significant fines or settlements.

	\$ 54,800 ⁰⁰	settlement
	\$ 500 ⁰⁰	costs and expenses
Total Amount	\$ 55,300 ⁰⁰	

☐ Case requires the responsible party to undertake activities having major impact on the community.

If you require any additional factual information, please contact Vincent Deluso of this office. Suncom 232-2650.

enclosure

EEF:dm

cc: John Ruddell, Division Director Waste Management/DEP, Tallahassee



Department of Environmental Protection

Lawton Chiles
Governor

FEB 17 1995

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert Foster, President
Perma-Fix of Fort Lauderdale, Inc., f/k/a
Integrated Resource Recovery, Inc.
1901 NW 67th Place, Suite E
Gainesville, FL 32606

Broward County
HW-Perma-Fix of
Ft. Lauderdale, Inc.

RE: Proposed Settlement by Short Form Consent Order in Case of DEP vs.
Integrated Resource Recovery, Inc.; OGC Case No. 94-3058.

Dear Mr. Foster:

The purpose of this letter is to complete the resolution of the violations previously identified by the Department of Environmental Protection (DEP) in the Warning Letter dated February 14, 1994, a copy of which is attached. The issues addressed by this Consent Order are restricted to the violations discovered during the DEP's April 4, 1993 inspection and cited in the DEP's Warning Letter and Inspection Report dated February 14, 1994. This Consent Order does not encompass any potential violations that may have occurred after the DEP's April 4, 1993 inspection. In order to complete a settlement of the violations described in the attached Warning Letter, you must pay the DEP \$54,800.00 in civil penalties along with \$500.00 to reimburse the DEP's costs, for a total of \$55,300.00. The payment may be made in 2 installments of \$27,650.00 each. This first payment is due within 20 days of execution of this Consent Order and the second and final payment will be paid by 8/15/95.

These payments must be made to "The Florida Department of Environmental Protection" by certified check or money order and shall include thereon the OGC number assigned above and the notation "Pollution Recovery Fund." The payments shall be sent to the Southeast District Office, P.O. Box 15425, West Palm Beach, Florida 33416.

Your signing of this letter where indicated at the end of page two constitutes your acceptance of DEP's offer to settle this case on these terms. If you sign this letter, please return it to DEP at the address above. DEP will then countersign this letter and file it with the Clerk of the DEP. When the signed letter is filed with the Clerk, the letter shall constitute a Consent Order, which is final agency action of the DEP, the terms and conditions of which may be enforced in a court of competent jurisdiction pursuant to Section 120.69 and 403.121, Florida Statutes. Failure to comply with the terms of this letter once signed by you and entered by the DEP Clerk shall constitute a violation of Section 403.161(1)(b), Florida Statutes.

By countersigning this settlement offer, the DEP waives its right to seek judicial imposition of damages, cost and expenses or civil penalties for the violations described above. By accepting this offer of settlement, you waive

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

your rights as described on the back of this document in the Notice of Rights. If you do not sign and return this letter to the DEP at the Southeast District address given above within 20 days of receipt, it will be referred to the DEP's Office of General Counsel with a recommendation that formal enforcement action be taken against you. None of your rights or substantial interests are determined by this letter unless you sign it and it is filed with the DEP Clerk.

Sincerely,

Carl R. deAguiar 2/17/95

Carlos Rivero-deAguiar Date
Director of District Management
Southeast District

I ACCEPT THE TERMS OF THIS SETTLEMENT OFFER.

For Perma-Fix of Fort
Lauderdale, Inc., f/k/a
Integrated Resource
Recovery, Inc.:

Robert Foster
Robert Foster, President
Perma-Fix of Fort
Lauderdale, Inc., f/k/a
Integrated Resource
Recovery, Inc.

For the DEP:

Carl R. deAguiar 5/9/95
Carlos Rivero-deAguiar
Director of District Management
Southeast District
Department of Environmental
Protection

ENTERED this 1st day of May, 1995
in West Palm Beach, Florida.

FILING AND ACKNOWLEDGMENT:
FILED, on this date, pursuant to
Section 120.52, F.S., with the
designated DEP Clerk, receipt of
which is hereby acknowledged.

Andreell Marie
Clerk

MAY 11 1995
Date

Copies furnished to:
West Palm Beach, DEP File

NOTICE OF RIGHTS

Persons who are not parties to this Consent Order but whose substantial interests are affected by this Consent Order have a right, pursuant to Section 120.57, Florida Statutes, to petition for an administrative hearing on it. The Petition must contain the information set forth below and must be filed (received) at the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 within 21 days of receipt of this notice. A copy of the Petition must also be mailed at the time of filing to the District Office named above at the address indicated. Failure to file a petition within the 21 days constitutes a waiver of any right such person has to an administrative hearing pursuant to Section 120.57, Florida Statutes.

The petition shall contain the following information:

- (a) The name, address, and telephone number of each petitioner; the Department's Consent Order identification number and the county in which the subject matter or activity is located;
- (b) A statement of how and when each petitioner received notice of the Consent Order;
- (c) A statement of how each petitioner's substantial interests are affected by the Consent Order;
- (d) A statement of the material facts disputed by petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Consent Order;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Consent Order;
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Consent Order.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the subject Consent Order have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 21 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes, and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 60Q-2.010, Florida Administrative Code.



Lawton Chiles
Governor

Florida Department of Environmental Protection

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

FEB. 14 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

WARNING LETTER #WL94-0008HW06SED
FLD981018773

Mr. Robert Foster
Integrated Resource Recovery, Inc.
1640 NW 67th Place
Gainesville, FL 32606

RE: Hazardous Waste Compliance Inspection at Integrated
Resource Recovery Inc.; Ft. Lauderdale, Florida.

Dear Mr. Moore:

A Hazardous Waste Compliance Inspection was conducted at your facility on April 4, 1993. This inspection was conducted under the authority of Section 403.091, Florida Statutes, and Chapter 403, Part IV, Florida Statutes, in order to determine the compliance status of your facility with Title 40 Code of Federal Regulations Parts 260 to 268, adopted in Florida Administrative Code Chapter 17-730.

During this inspection, possible violations of rules regarding hazardous waste management were noted. These possible violations are described in the "Summary of Violations" section of the attached inspection report.

You are advised that any activity at your facility that may be contributing to violations of the above described statutes and rules should be ceased immediately. Operation of a facility in violation of state statutes or rules may result in liability for damages and restoration, and the judicial imposition of civil penalties up to \$50,000 per violation per day pursuant to Section 403.727, Florida Statutes.

You are requested to contact Mr. Vincent F. Peluso of this office at 407/433-2650 within 10 calendar days of receipt of this Warning Letter to arrange a meeting with Department personnel to discuss the issues raised in this Warning Letter. You may wish to consult an attorney and to have the attorney attend the meeting with the Department.

PLEASE BE ADVISED that this Warning Letter is part of an agency investigation preliminary to agency action in accordance with Section 120.57(4), Florida Statutes. The purpose of this letter is to advise you of potential violations and to set up a meeting to discuss possible resolutions to any potential violations that may have occurred for which you may be responsible. Under the Department's agreement with the United States Environmental Protection Agency (EPA), a formal administrative complaint or "Notice of Violation" (NOV) must be issued within 90 days of the date of the attached inspection report. The issuance of the NOV may be avoided through the entry of a consent order or a demonstration that the listed violation did not occur. If the Department issues a NOV, and you are named as a party, you will be informed of your rights to contest any determination made by the Department in the NOV.

If after further investigation, the Department determines that the violations occurred, this matter may be resolved through the entry of a Consent Order which will include a compliance schedule and an appropriate penalty. In accordance with the RCRA Civil Penalty Policy of 1990, the penalties which would be assessed in this case are \$350,150.00 in addition to \$500.00 for costs and expenses.

Sincerely,



Mary E. S. Williams
Director of District Management

MW/vp

cc: Office of General Counsel, DEP, Tallahassee
Kenneth Lapierre, EPA Region IV, Atlanta
Kevin Burger, Broward County ONRP
File, Reporting Coordinator
~~West Palm Beach DEP file~~
Jeff Sherman, IRR



Lawton Chiles
Governor

Florida Department of Environmental Protection

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

HAZARDOUS WASTE INSPECTION REPORT

1. INSPECTION REPORT ☐ COMPLAINT ☒ ROUTINE ☐ FOLLOW-UP ☐ PERMITTING

FACILITY NAME Integrated Resource Recovery (IRR) DEP/EPA ID FLD98101877
ADDRESS 3670 S.W. 47th Ave.
Davie, FL 33314

COUNTY Broward PHONE 305/583-3795 DATE 4/8/93 TIME 9:50 AM

TYPE OF FACILITY:

GENERATOR

☒ Generator
☐ Small Quantity
☐ Conditionally Exempt
☐ Non-Handler

STORAGE

☐ Container
☒ Tank
☐ Waste Pile
☐ Surf. Impoundment

TREATMENT

☒ Tank
☐ Land Treatment
☐ Thermal
☒ Chem/Phys/Bio
☐ Incinerator
☐ Surface
☐ Impoundment

TRANSPORTER

☒ Transporter
☒ Transfer Facility

DISPOSAL

☐ Landfill
☐ Surface Impoundment
☐ Waste Pile

2. Applicable Regulations:

☐ 40 CFR 261.5 ☒ 40 CFR 262 ☒ 40 CFR 263 ☒ 40 CFR 264
☐ 40 CFR 265 ☐ 40 CFR 266 ☒ 40 CFR 268

3. Responsible Official: (Name and Title)
Gary Moore - President IRR

4. Survey Participants and Principal Inspector:
Vincent Peluso, Jeffrey Smith, Knox McKee - FDEP
Gary Moore - IRR

5. Facility Latitude: 26.04.34 Longitude: 80.12.37

6. Type of Ownership: FEDERAL STATE COUNTY MUNICIPAL PRIVATE

Permit Number: HO706-227479 Date Issued: Pending Review

8. Pre-arranged Inspection: ☐ Yes ☒ No

INTRODUCTION

On April 8, 1993 a routine Hazardous Waste Compliance Inspection was conducted at Integrated Resource Recovery, Inc. (IRR) located at 3670 SW 47th Avenue, Davie, FL 33314. IRR was incorporated on January 15, 1985. IRR initially operated as a used oil recycler. Hosting the inspection was Mr. Gary L. Moore, the current president, and Mr. Darin Robinson, facility manager of IRR. Mr. Moore has been with IRR since September of 1990. According to Mr. Moore, IRR began involvement in hazardous waste treatment operations about three years ago.

IRR accepts waste oil and oily wastewater for recycling and specific kinds of hazardous waste for treatment. IRR mostly accepts used oil from automotive service stations and sells the recycled oil to asphalt road companies who use it for fuel. IRR's operations generate wastewater which must be transported off-site to a POTW because IRR is not hooked up to a public sewer. IRR is also a Florida registered transporter of hazardous waste.

IRR has three full time employees who work at the facility. The other office staff employees, including Mr. Moore, work in the office located about two blocks away at 4001 SW 47th Ave, Suite 211, Davie, FL 33314. Mr. Moore stated that IRR processes approximately three million gallons of waste oil/water per year. IRR has a Hazardous Waste Treatment Permit (#HO-06-227479) pending review. Department personnel present were Mr. Vincent Peluso, Mr. Jeffrey Smith and Mr. Knox McKee.

BACKGROUND

On or before September 24, 1990, IRR submitted a Part A application for treatment and storage of hazardous waste and gained interim status to manage TC characteristic hazardous wastes. On November 30, 1990, IRR submitted a revision to the Part A application which addressed the hazardous wastewaters treated at the facility. Almost a year later, on October 10, 1991, the Department notified IRR that a temporary operating permit (TOP) was required to continue operation because of a change in the regulations. Consequently, IRR was required to Submit a Part B application. The first section of the Part B application was submitted on October 29, 1991, without a professional engineer's certification. On December 31, 1991 the Department received additional submittals intended to augment the original submittal, but it was still deficient on numerous points. On March 6, 1992 the Department sent out a Notice of Deficiency (NOD) in response to the Part B permit application. Five weeks later, on April 16, 1992, the Department detailed a schedule of compliance. This compliance schedule incorporated the suggestion that IRR retain a consultant to rewrite the permit application. On April 28, 1992 IRR provided documentation that they had retained a consultant and requested an extension on the time required to submit the permit application. This extension was granted so the Part B permit

application due date was extended from July 31, 1992 to October 5, 1992. On October 8, 1992 IRR declared that the final permit application was to be submitted by January 15, 1993. On January 19, 1993 the Department did receive the revised application but the required permit application fee was not received until March 8, 1993.

On September 24, 1992, the USEPA conducted a RCRA Compliance Evaluation Inspection (CEI) at IRR. The purpose of the inspection was to evaluate the facility's compliance with 40 C.F.R. Part 265, Interim Status Standards Applicable to Owners and/or Operators of Treatment/Storage and Disposal Facilities. The Inspection Report was issued on January 22, 1993. In it several violations were cited and based on the extent of the violations, IRR was classified as a high priority violator (HPV). The violations cited by the EPA inspection were as follows:

- a. IRR was in violation of § 265.31, inadequate maintenance and operation of a facility, by failing to address equipment which was releasing hazardous wastes beyond de minimis amounts. This was cited because the secondary containment had numerous cracks and gaps in the sides of the walls and there were two sizable leaks in the process equipment handling the hazardous waste. The leaks within the structurally insufficient containment system posed a potential threat of release of hazardous waste to the environment.
- b. IRR was in violation of § 265.112 because they failed to have an adequate closure plan.
- c. IRR was in violation of § 265.142 because they failed to prepare an accurate closure cost estimate.
- d. IRR was in violation of § 265.143 because no financial assurance for closure was provided.
- e. IRR was in violation of § 265.13 because they failed to have an adequate waste analysis plan.
- f. IRR was in violation of § 265.15 because they failed to meet general inspection requirements. All units to be inspected were not specified; IRR failed to have sign off by inspectors and failed to provide means for documenting problems and subsequent corrective action.
- g. IRR was in violation of § 265.191 for failure to have P.E. Certifications and assessments of the existing tanks assuring their integrity.

Some of the violations mentioned in the EPA report were also mentioned in the first NOD issued by DER. All violations should have been corrected by the time of the DER inspection on April 8, 1993. Also at the time of the DER inspection other potential violations were discovered.

SITE INSPECTION

IRR has basically two distinct processes, recycling of waste oil and treatment of hazardous wastewaters.

Waste Oil Recycling Operation:

IRR personnel reportedly use a "chlor-detect" test kit on incoming material as a screening method. It can detect 1000 ppm or greater of chlorinated hydrocarbons in waste oil. Personnel stated if the waste failed this test, the entire load would be rejected. No records were produced with regards to this.

The recycling operation involves basic settling and filtration. First the waste oil is off loaded from 6,000 - 8,000 gallon trucks into a main waste oil tank. By drawing from the bottom of the tank, separation begins here. Then the waste oil goes to a 20,000 gallon vertical storage tank. The oil remains in the tank until an order comes in. Meanwhile, further separation of oil and water occurs in this tank. Then the oil is filtered and pumped into a 6,500 gallon tanker. The used oil is eventually used as a fuel for asphalt companies who burn it in a rotary kiln during road construction. IRR may blend diesel into it depending on customer requirements for viscosity and octane requirements. Diesel is stored on-site in a 10,000 gallon tank.

Since the facility is not covered by a roof, any rainwater and oily waste water within the secondary containment unit, according to Mr. Robinson, is pumped into the wastewater treatment tanks.

Wastewater Treatment Unit (WWTU):

Mr. Moore described the various wastewaters picked up and treated by IRR. They include petroleum contaminated wastewater from tanks, drains and sumps, wastewater from oil change companies, abandoned tanks, and contaminated rain water from secondary containment, environmental remediations related wastes like soakage pits, development and monitoring well waters, and oil water separators. The hazardous wastewater treatment plant is only supposed to treat characteristic wastes (D018-D043). According to Mr. Moore, 95% of wastewater is petroleum contaminated. All wastewater is first characterized by TCLP or by generator knowledge. Mr. Moore claimed that IRR used to do TCLP a lot, but now they have sufficient product knowledge and client test data history to justify the waiving of the testing requirements for all loads. He went on to say that IRR's competitors do not require TCLP for similar situations so it would hurt business for IRR to make it a requirement of all incoming wastes. Mr. Moore maintained that if a suspicion exists, then IRR does require a TCLP analysis.

Mr. Moore stated that the generators of the waste are responsible to test and/or identify their wastes, not IRR, and that their clients know that no solvents waste (F-listed) is allowed. For an example, Mr. Moore said that Exxon uses generator knowledge of hazardous constituents to identify their gasoline contaminated wastewater picked up by IRR.

Reportedly non-hazardous and benzene contaminated wastewater both go through the same process.

The trucks pump the waste into the 7,000 gallon hazardous wastewater storage tank. IRR is required to have on file at the facility a written assessment reviewed and certified by an independent, qualified, registered professional engineer attesting to the tank system's integrity.

From the storage tank, the wastewater is pumped to a small chemical conditioning tank where liquid potassium permanganate is added to break down the organic pollutants. The wastewater is then filtered.

Mr. Moore said that non-hazardous and hazardous sludges were generated and that the wastewater generated is non-hazardous. He also said that all hazardous sludge is manifested and all waste filter media is characterized and handled appropriately.

Mr. Moore claimed that IRR's wastewater generated from the WWTU process has been trucked to the Ft. Lauderdale POTW on Powerline Road. He also said that all RCRA wastes, sludges and spent filter media, are sent to either Chemical Pollution Control in New York or Chemical Conservation Company in Connecticut and that all other non-hazardous wastes go to Clark Environmental in Mulberry, Florida.

STAGING AREA

Used oil filters are processed here and staged for up to 30 days and shipped to R.S. Environmental for recycling.

TRANSFER FACILITY

IRR also operates as hazardous waste transfer facility. They manage F-listed wastes in drums and have them picked up within 10 days.

IRR does maintain a hazardous waste drum storage area for wastes generated on-site which had 1 drum at the time of the inspection which was labeled and in good condition in accordance with 40 CFR 262.34(a). In the temporary storage area fifty-three 55-gallon containers of non-hazardous waste oil were present.

FACILITY LAYOUT

The facility was surrounded by a tall chain link fence preventing unauthorized entry. Three storm drains were present, outside of the process and containment areas. One sewer main was present in the northeast corner of the facility, outside of the containment area. IRR had not connected to the POTW, but at the time of the inspection an

outfall pipe to the POTW was being installed. The ground around this northeast area had been freshly sodded with grass as evidenced by rectangular outlines in the grass. Mr. Moore stated that a recent release of the contents of the secondary containment unit had occurred in this area. Therefore, Mr. Moore went on to say that IRR excavated the contaminated soils and repaired the secondary containment wall in this area. Five monitoring wells were noted on-site, two on the east side and three on the west side of the facility, all just outside of the containment areas.

IRR had a PA system and portable two-way radios for the facility. "No Smoking" signs, fire extinguishers, and spill control equipment appeared in order.

RECORD REVIEW

Training records and the Contingency Plan appeared to be in order. A copy of IRR's Biennial report was requested, but not produced. The waste analysis plan and analytical results before treatment (oxidation) and after treatment were requested but not produced. Documented storage time for transfer facility and inspection logs were present but lacked required information such as sign off by inspectors, notation of observations made, date and nature of repairs, as required in 40 CFR 265.15(d). Disposal records for the shipments of non-hazardous wastewater to the POTW were requested but not produced.

Several files of manifests were reviewed and appeared to be in order. IRR was sometimes listed as the disposal facility, sometimes the generator, and sometimes the transporter. When they were the disposal facility, they accepted wastes using a modified land ban which was simplified to include only three allowable waste codes D001, D008 and D018. In other instances, the generator used product knowledge to certify that the waste was only hazardous for IRR's specific, accepted criteria.

Tank certifications for tanks involved with the hazardous wastewater treatment process were requested but not available for inspection and possibly do not exist. Inspections records were inspected and appeared to be lacking important information required for operation of a TSD facility.

DEPARTMENT FINDINGS

At the time of the inspection it appeared that IRR was a Large Quantity Generator, Treatment Facility, and Transfer Station for hazardous waste. DER provided the facility with an Exit Interview Summary which listed possible violations noted by DER. The notice advised the facility to immediately begin correcting the deficiencies and that enforcement action may result. Mr. Moore was asked to submit additional

documentation within ten days of the inspection regarding the following deficiencies.

List of requested items from Exit Interview Summary:

Potential Violations cited:

- 1) Recordkeeping for Land Ban documents
- 2) Tank Requirements
- 3) Other violations associated with the permit application

Documentation requested was:

- 1) Biennial report for 1990-1991 and
- 2) Analytical data for samples taken prior to chemical conversion tank and after filter process.

Results and Conclusions of Documentation received after the inspection: IRR's Biennial report was provided to the Department and appeared to be in order. Analytical data was received for untreated and treated water which was lacking the detail and scope required to assure consistency of proper hazardous waste treatment.

The Department awaited for the Hazardous Waste Permitting Section's review of IRR's permit application to assess IRR's compliance with § 265. IRR had submitted the permit application prior to the Department's hazardous waste compliance inspection. The completed review of IRR's permit revealed additional hazardous waste regulation deficiencies.

Hazardous waste management rules have been violated, as noted below ("Summary of Violations"). The Department expects the violations to be corrected in an expeditious and safe manner. The DEP Enforcement Section (phone 407/433-2650) is willing to provide assistance, within the Department's capabilities, limitations, time constraints and workload. In addition, if not already done so, the Department suggests that a copy of the hazardous waste regulations (40 CFR Parts 260-268) be obtained, from local public or college or law libraries, or EPA Region IV (Atlanta, GA), or the U. S. Government Printing Office (Washington, D.C. 20402), etc. (NOTE: The DEP/West Palm Beach office does not have copies of the regulations to hand out.)

SUMMARY OF VIOLATIONS

- 1) 40 CFR 265.191

Tanks Assessments (Existing Tanks)

IRR has failed to meet the assessment requirements, as noted in the text of this report.

- 2) 40 CFR 265.31

Design and Operation of Facility

The facility was not maintained and operated in a manner which minimizes or eliminates the possibility of releases of hazardous wastes or hazardous waste constituents which

could threaten human health or the environment.

3) 40 CFR 265.15

Inspections (Containers)

IRR has failed to perform hazardous waste containers inspections as required in 265.15.

4) 40 CFR 265.143

Financial Assurance for Closure

IRR has failed to establish financial assurance for closure of the facility.

5) 40 CFR 265.13

General Waste Analysis

IRR has failed to comply with the general waste analysis requirements.

6) 40 CFR 265.147

Liability Insurance Requirement

IRR has failed to maintain the full amount of required liability insurance coverage for sudden accidental occurrences.

RECOMMENDED CORRECTIVE ACTIONS

1) 40 CFR 265.191

Tanks Assessments (Existing Tanks)

IRR must meet the assessment requirements by providing proper certification for each tank.

2) 40 CFR 265.31

Design and Operation of Facility

IRR must maintain equipment and secondary containment areas of the facility to eliminate the possibility of release of hazardous waste constituents which could threaten human health or the environment.

3) 40 CFR 265.174

Inspections (Containers)

Effective immediately and henceforth, all hazardous waste containers shall be inspected at least weekly, to check for labels, leaks, aisle space, deterioration/corrosion of containers, etc. An inspection log shall be maintained, and shall include (at a minimum) the information identified in 40 CFR 265.15(d).

4) 40 CFR 265.143

Financial Assurance for Closure

IRR must establish financial assurance for closure of the facility.

5) 40 CFR 264.13

General Waste Analysis

IRR shall comply with the general waste analysis requirements.

6) 40 CFR 265.147

Liability Insurance Requirement

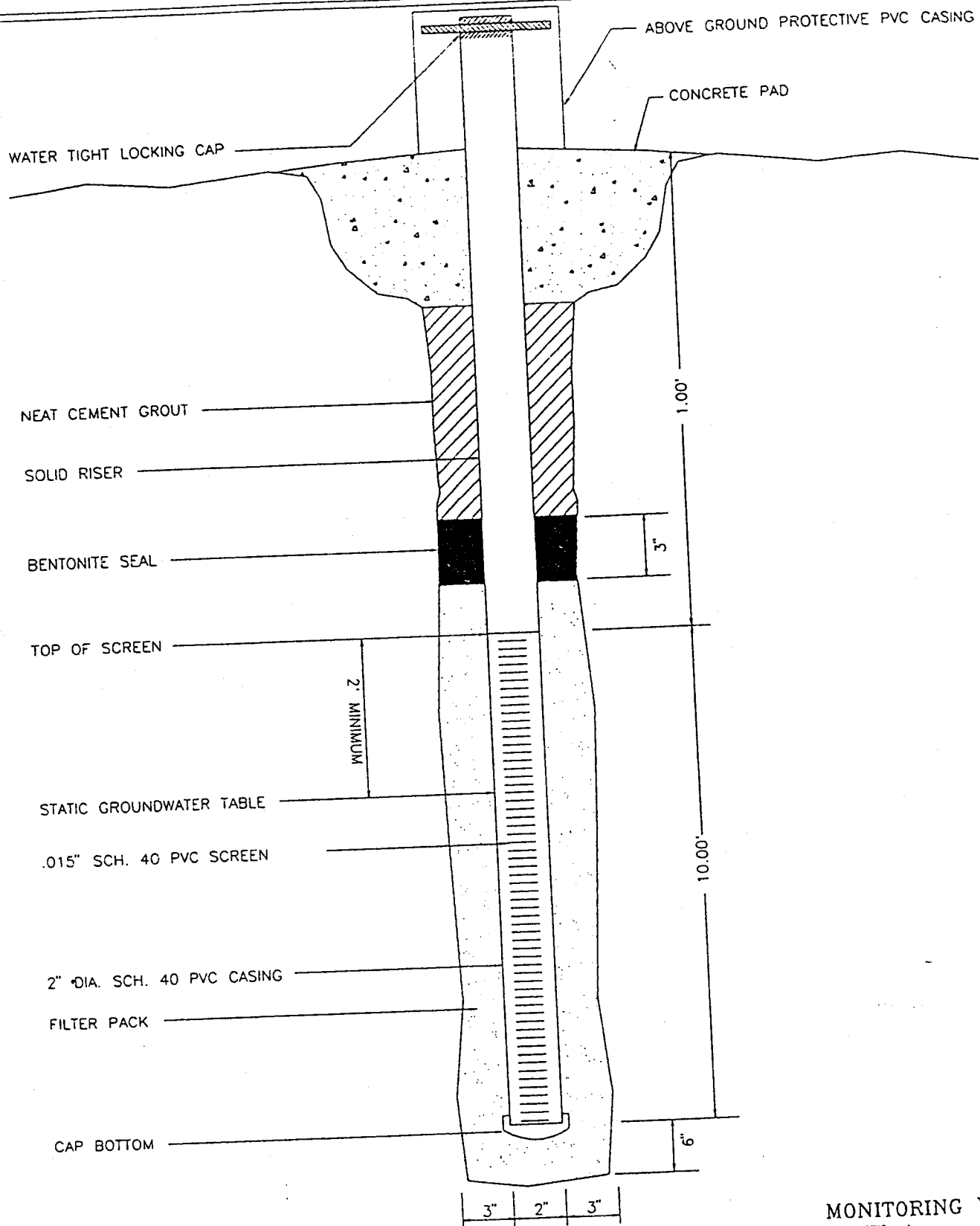
IRR must obtain and show proof of minimal liability insurance coverage for sudden accidental occurrences as prescribed in 40 CFR 265.147.

Facility personnel were cooperative.

Future reinspections of the facility will be conducted to ensure proper management of hazardous waste.

cc: Kenneth R. Lapierre, USEPA Region IV
Kevin Burger, Broward County DNR
File, Reporting Coordinator
West Palm Beach, DEP files

APPENDIX D
GEOLOGIC AND HYDROGEOLOGIC DOCUMENTS



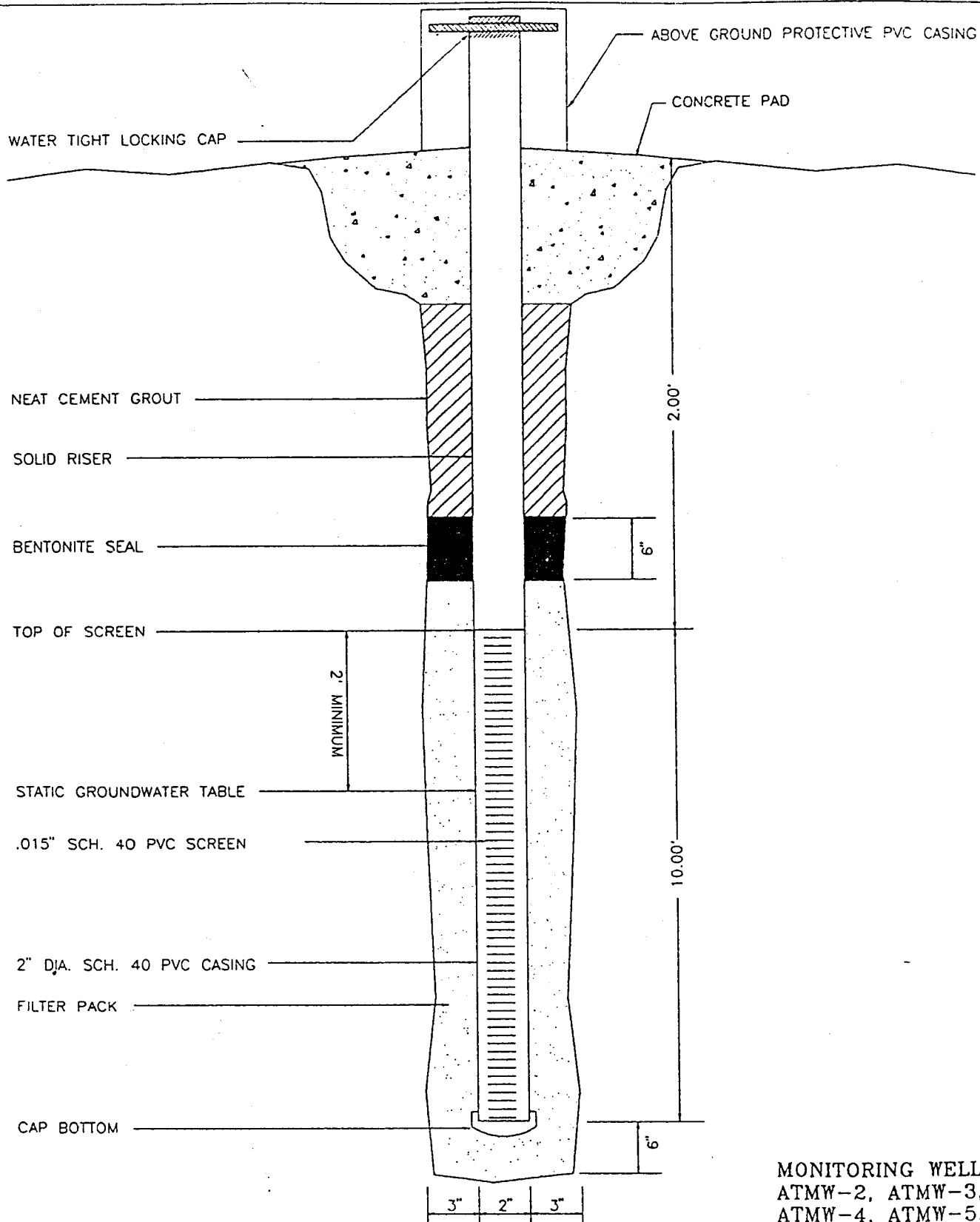
MONITORING WELL
ATMW-1

NOT TO SCALE

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 5A: SHALLOW WELL CONSTRUCTION PROFILE
PROJECT NAME: PERMA-FIX ENVIRONMENTAL SERVICES
ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: R.K.M.
DATE: 2/26/97
PROJ. NO. AT-1260



MONITORING WELLS
ATMW-2, ATMW-3,
ATMW-4, ATMW-5,
ATMW-6 AND ATMW-7

NOT TO SCALE

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 5B: SHALLOW WELL CONSTRUCTION PROFILE

PROJECT NAME: PERMA-FIX ENVIRONMENTAL SERVICES

ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: R.K.M.

DATE: 2/26/97

PROJ. NO. AT-1260

OAKES ROAD (S.W. 36TH STREET)



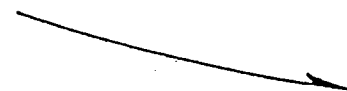
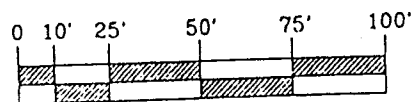
S.W. 47TH AVENUE

EMW-2

ENTRANCE/DRIVEWAY

EMW-3

EMW-4



OFFICE TRAILER

PRODUCT PIPING
AND SUPPORTS

ATMW-7 1.80

SYSTEM TREATMENT BUILDING

SYSTEM TREATMENT BUILDING

ATMW-5
1.81

ATMW-4
1.62

ATMW-3
1.80

AGT
AGT
AGT

ATMW-6
1.73

ATMW-2
1.75

FORMER FRENCH-
DRAIN SYSTEM

ATMW-1
1.75

AGT
AGT
AGT
AGT
AGT
AGT
AGT

1.67

EMW-1

1.80

1.75

1.70

LEGEND:

- ⊗ - NEW/EXISTING MONITORING WELL (MW) LOCATIONS
- 1.67 - GROUNDWATER ELEVATION (IN FEET)
- - GROUNDWATER FLOW DIRECTION

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 6A: GROUNDWATER ELEVATION MAP - MARCH 4, 1997
PROJECT NAME: PERMA-FIX ENVIRONMENTAL SERVICES
ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: RKM
3/4/97
PROJ. #: AT-1260

APPENDIX E
TANK FARM LAYOUT, DESIGN, AND PRODUCTS MANAGED

Waste Oil Recycling Unit

Tank No.	Tank Capacity (Gal.)	Product Stored	Tank Install Date	Product Stored Code	Tank Diameter & Length	Tank Thickness	Above or Under Ground
T1	8,000	Waste oil	Jan-89	I	8' x 21.5'	3/8"	Above
T2	8,000	Waste oil	Jan-89	I	8' x 21.5'	3/8"	Above
T3	6,000	Waste oil	Apr-89	I	8' x 16'	3/8"	Above
T5	10,000	Waste oil	Jun-87	I	10' x 18'	3/8"	Above
T6	9,500	Waste diesel	Jun-87	d	10.5' x 14.6'	3/8"	Above
T8	20,000	Waste oil & diesel	Jun-87	I/d	10.5' x 31'	3/8"	Above
T10	20,000	Waste oil	Jun-87	I	10.5' x 31'	3/8"	Above
T11	20,000	Waste oil	Jun-87	I	10.5' x 31'	3/8"	Above
T12	20,000	Waste oil	Mar-89	I	10.5' x 31'	3/8"	Above
T13	20,000	Waste oil	Mar-89	I	10.5' x 31'	3/8"	Above
T19	2,000	Waste oil	Apr-89	I	5.33' x 12'	3/8"	Above
T20	1,000	Veh. diesel	Feb-92	d	5.33' x 6'	3/8"	Above

Product Stored Code: z - Wastewater I - Waste oil d - Waste diesel

Wastewater Treatment Unit

Tank No.	Tank Capacity (Gal.)	Product Stored	Tank Install Date	Product Stored Code	Tank Diameter & Length	Tank Thickness	Above or Under Ground
T4	6,000	Wastewater	Apr-89	z	8' x 16'	3/8"	Above
T7	10,000	Wastewater	Jan-93	z	8' x 26'	1/4"	Above
T9	20,000	Wastewater	Mar-89	z	10.5' x 31'	3/8"	Above
T14	20,000	Wastewater	Mar-89	z	10.5' x 31'	3/8"	Above
T15	20,000	Wastewater	Apr-89	z	10.5' x 31'	3/8"	Above
T16	20,000	Wastewater	Apr-89	z	10.5' x 31'	3/8"	Above
T17	20,000	Wastewater	Apr-89	z	10.5' x 31'	3/8"	Above
T18	6,500	Wastewater	Apr-89	z	8.5' x 16'	3/8"	Above
S1	2,000	Oil/H2O separator.	Apr-89	z	4.3'x 6.3'x 10.5'	3/8"	Above
S3	1,000	Wastewater	Apr-89	z	3.8'x 12'	3/8"	Above

Product Stored Code: z - Wastewater I - Waste oil d - Waste diesel

Proposed Wastewater Treatment Tanks Currently Under Construction

Tank No.	Tank Capacity (Gal.)	Product Stored	Tank Install Date	Product Stored Code	Tank Diameter & Length	Tank Thickness	Above or Under Ground
W1	101,000	Wastewater	TBD	z	TBD	TBD	Above
W2	30,000	Wastewater	TBD	z	TBD	TBD	Above
W3	30,000	Wastewater / Eff.	TBD	z	TBD	TBD	Above
B1	30,000	Wastewater / Bio.	May-96	z	12'x35'	5/16"	Above
B1	30,000	Wastewater / Bio.	May-96	z	12'x35'	5/16"	Above

Product Stored Code: z - Wastewater I - Waste oil d - Waste diesel

FIGURE 11.C.2 (a)

TANK FARM

INTEGRATED RESOURCE RECOVERY, INC.

OFFICE TRAILER
NOT TO SCALE

HAZARDOUS TANK SYSTEM

PROPOSED HAZARDOUS
SLUDGE CONDITIONING
TANKT-19
1,000 GAL.OIL/WATER SEPARATOR 200 GAL/
HPL MOUNTED ON CONCRETE
PLATFORM, ABOVE GROUNDCHEMICAL CONDITIONING
TANK 1000 GAL. - MOUNTED ON
SKIDS ABOVE GROUND275 GAL.
CAPACITY OIL
HOLDING TANK

T-22

T-21

T-20

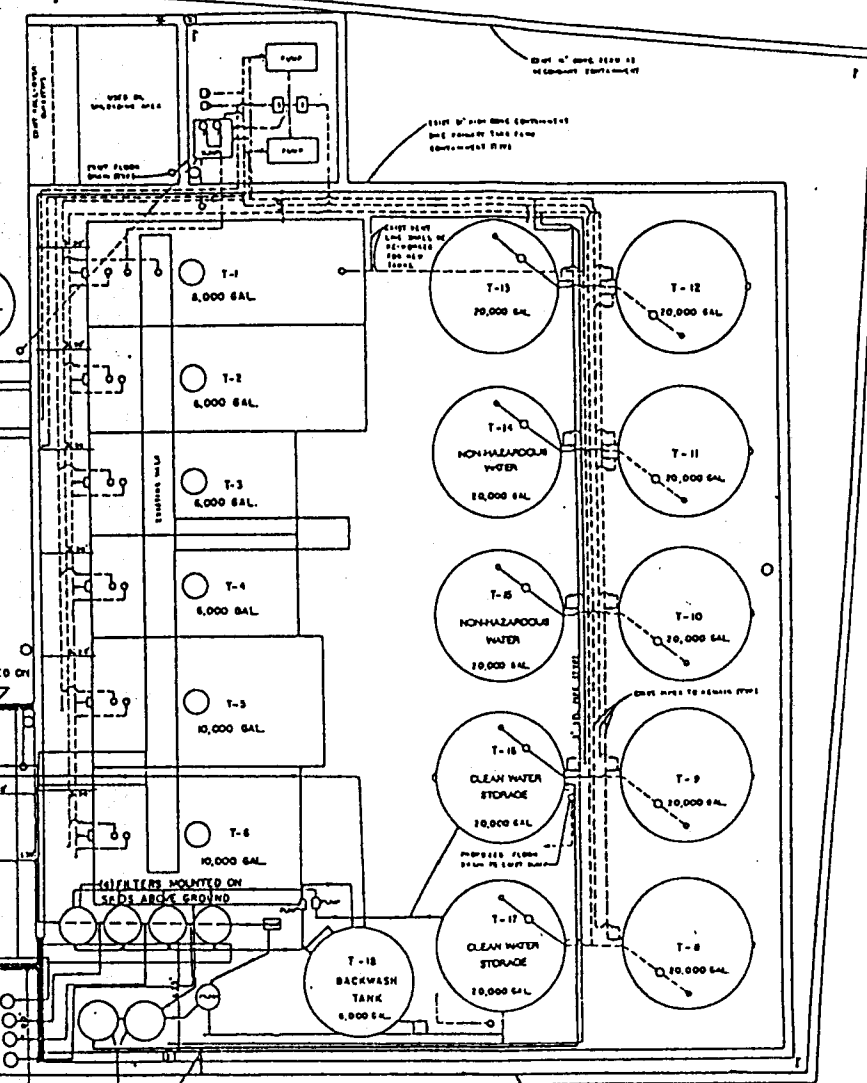
T-7
HAZARDOUS WATER STORAGE
MOUNTED ON SKIDS ABOVE GROUND
10,000 GAL.

31" HGT. CONC. BLK. WALL

TO TRUCK DISPOSAL

141 CHEMICAL FEED
TANKS

SAMPLING POINT

POLISHING FILTERS 121
MOUNTED ON SKIDS
ABOVE GROUNDDISPOSAL OF CLEAN WATER
TO TOWN OF DAVIE SEWER
SYSTEM

SEE FIGURE 11.C.2 (b) FOR DETAIL

EQUIPMENT STORAGE
E-100 FOR SPS &
SAFETY EQUIPMENT

- LEGEND
- ⊙ EMERGENCY STATIONS
 - * EMERGENCY ALARMS
 - SUMP PUMP
 - ⊠ FIRE EXTINGUISHER

REVISIONS	DATE: 11-11-81
	BY: J. B. B. M.
	CHECKED BY: J. B. B. M.
	DESIGNED BY: J. B. B. M.
	PROJECT NO.
	SHEET NO.

TANK STORAGE,
AND WATER TREATMENT SYSTEMINTEGRATED RESOURCE RECOVERY, INC.
3670 S.W. 47TH AVENUE
DAVE, FLORIDA 33314

APPENDIX F
GROUNDWATER MONITORING DATA

**CONTAMINATION ASSESSMENT REPORT ADDENDUM
PERMA-FIX OF FORT LAUDERDALE, INC.
3670 S.W. 47TH AVENUE
DAVIE, FLORIDA**

Prepared For:

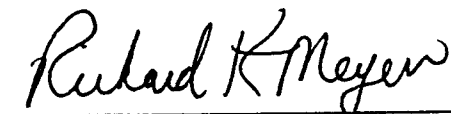
**BROWARD COUNTY DEPARTMENT
OF NATURAL RESOURCE PROTECTION
218 S.W. 1ST AVENUE
FORT LAUDERDALE, FL 33301**

Prepared By:

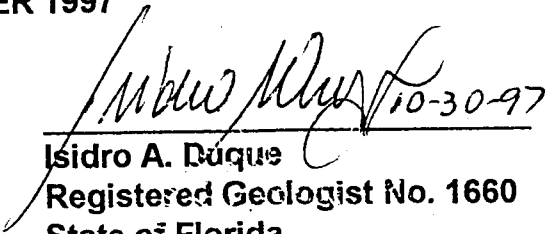
**AQUA TERRA, INC.
3250 CORPORATE WAY
MIRAMAR, FLORIDA 33025**

PROJECT # AT-1260

OCTOBER 1997



**Richard K. Meyers
Project Scientist**



**Isidro A. Duque
Registered Geologist No. 1660
State of Florida**

AQUA TERRA, INC.



ENVIRONMENTAL CONSULTANTS

October 30, 1997

Mr. Sean McFarlane
Broward County Department of
Natural Resource Protection
218 S.W. 1st Avenue
Fort Lauderdale, Florida 33301

**RE: CONTAMINATION ASSESSMENT REPORT ADDENDUM FOR THE PERMA-
FIX OF FORT LAUDERDALE, INC. FACILITY LOCATED AT 3670 S.W. 47TH
AVENUE, DAVIE, FLORIDA.
AT-1260**

Dear Mr. McFarlane:

Aqua Terra, Inc. (Aqua Terra) is providing you with the following Contamination Assessment Report Addendum (CARA) for the above referenced facility.

Should you have any questions or require additional information, please do not hesitate to contact us at (954) 433-8804.

Sincerely,

AQUA TERRA, INC.

Richard K. Meyers
Sr. Project Scientist

cc: Chris Blanton, Perma-Fix
Tom Trebonik, Mintech, Inc.
Vincent Peluzo, FDEP

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4.0 CONCLUSION AND RECOMMENDATION	5

FIGURES

FIGURE 1	Site Map with Monitoring Well Locations
FIGURE 2	Shallow Well Construction Profile (ATMW-9, ATMW-10, ATMW-11 and ATMW-12)
FIGURE 3	Deep Well Construction Profile (ATMW-8D)

APPENDICES

APPENDIX A	Correspondence Letters
APPENDIX B	Laboratory Reports and Chain of Custody Documentation
APPENDIX C	Excerpts from the United States EPA Draft Remedial Investigation Report for the Florida Petroleum Reprocessors Site
APPENDIX D	Historical Summary of PMI Data Documenting Soil and Groundwater Impacts Prior to the Perma-Fix Vandalism Incident

1.0 INTRODUCTION

In July 1997, Aqua Terra, Inc. (Aqua Terra) submitted a Contamination Assessment Report (CAR) to the Broward County Department of Natural Resource Protection (DNRP) for the Perma-Fix of Fort Lauderdale, Inc. ("subject site") facility located at 3670 S.W. 47th Avenue, Davie, Florida. On August 7, 1997, a letter was issued by the DNRP requesting additional assessment to be performed at the subject site. Aqua Terra responded to the DNRP letter on August 22, 1997 in an effort to clarify a number of issues and request an extension of time to complete the required assessment activities. On September 15, 1997, the DNRP responded to Aqua Terra's letter and granted a 45 day time extension to submit a CAR Addendum. Copies of the above referenced correspondence letters are included in Appendix A.

This CAR Addendum summarizes the additional assessment activities and results. The assessment activities were conducted in accordance with Chapter 62-770 of the Florida Administrative Code (F.A.C.).

2.0 MONITORING WELL INSTALLATION AND SAMPLING ACTIVITIES

On October 2, 1997, a deep groundwater monitoring well (ATMW-8D) was installed between monitoring wells ATMW-2 and ATMW-6 in an effort to delineate the vertical extent of groundwater contamination. Additionally, four shallow groundwater monitoring wells (ATMW-9, ATMW-10, ATMW-11 and ATMW-12) were installed around monitoring well ATMW-7 in an effort to delineate the extent of free product. On October 6, 1997, a five-inch diameter monitoring well (ATMW-13) was installed immediately north of monitoring well ATMW-7 for the purposes of recovering free product, should any exist. A site map depicting the previously and newly installed monitoring wells is provided as Figure 1. Figures 2 and 3 depict the shallow and deep well construction profiles, respectively.

On October 8, 1997, groundwater samples were collected from the following monitoring wells for analysis of the following parameters:

MONITORING WELLS AND APPLICABLE ANALYSES										
WELL/ ANALYSIS	EPA Method 601	EPA Method 602	EPA Method 8260	EPA Method 8270	FL- PRO	Arsenic	Cadmium	Chromium	Lead	Dissolved Lead
ATMW-1									✓	✓
ATMW-3									✓	✓
ATMW-4									✓	✓
ATMW-8D			✓	✓	✓	✓	✓	✓	✓	✓
ATMW-9	✓	✓								
ATMW-10	✓	✓								
ATMW-11	✓	✓								
ATMW-12	✓	✓								

The laboratory analytical results revealed that all parameters, with the exception of Methyl-Tert-Butyl-Ether (MTBE) in monitoring wells ATMW-10 and ATMW-12, were below detection limits (BDL). Concentrations of MTBE in monitoring wells ATMW-10 and ATMW-12 were 3.68 micrograms per liter (µg/l) and 1.11 µg/l, respectively. These concentrations are below the site rehabilitation levels (SRL's) established in 62-770 F.A.C. A copy of the laboratory reports and chain of custody documentation are included in Appendix B.

Additionally, it was determined on October 8, 1997 that no free product was present within monitoring wells ATMW-9, ATMW-10, ATMW-11, ATMW-12 and ATMW-13.

All wells were installed by Chem Drill, Inc. using standard well drilling techniques and decontamination procedures. All sampling was conducted in accordance with Aqua Terra's Comprehensive Quality Assurance Plan (CompQAP #940024G). Groundwater samples were collected after a minimum of five well volumes were purged to ensure representative groundwater quality conditions. All metals samples were collected using a peristaltic pump to minimize turbidity. All other samples were collected using decontaminated Teflon bailers. All samples were subsequently preserved in a ice-filled cooler during transport to Precision Environmental Laboratory, Inc. (CompQAP #920323) for analysis. Equipment blanks were collected and analyzed for quality control purposes.

3.0 ADDITIONAL INVESTIGATIVE ACTIVITIES

The United States Environmental Protection Agency (EPA), through its contractor Bechtel Environmental, collected groundwater samples from several wells located at the Perma-Fix of Fort Lauderdale, Inc. facility. The samples were split with representatives of Perma-Fix and analyzed for a variety of parameters. The results obtained by Perma-Fix were provided to DNRP in the CAR dated July 1997.

In September 1997, EPA released its Draft Remedial Investigation Report which contained the results of analyses obtained by EPA on the groundwater samples from the Perma-Fix facility. Appendix C contains selected excerpts from the EPA Draft Remedial Investigation report documenting EPA's activities and results of analyses for groundwater samples collected from the Perma-Fix facility. A full copy of the Draft Remedial Investigation Report is available from the EPA, Region IV Office. The results of groundwater analyses obtained by EPA are consistent with the data reported in the CAR.

As a result of claims made by a neighboring site (PMI) that the vandalism incident at Perma-Fix resulted in groundwater impacts on their property, a file search of DNRP records was conducted. The purpose of the search was to determine if groundwater impacts were previously known to exist at PMI. The results of the search indicated that impacts to groundwater were detected at PMI as early as September 1992, and that there are currently remedial activities required to be implemented as a result of previously discovered PMI releases.

Appendix D presents a historical summary of the dates, events and reports containing historical PMI data. All reports cited are contained in the files of DNRP. In addition, a table of groundwater laboratory analysis results copied from the May 23, 1995 PMI Tank Closure Assessment/Contamination Assessment Report is provided for review. This document appears to provide the latest information on groundwater quality at PMI. Additional groundwater samples have not been collected from the PMI site. The EPA notes in the Draft Remedial Investigation Report that the wells at PMI had been plugged with concrete or were damaged so as to preclude the collection of representative groundwater samples.

4.0 CONCLUSION AND RECOMMENDATION

Based on the results of the most recent analyses in conjunction with the previously submitted Contamination Assessment Report, Aqua Terra supports its previous recommendation of groundwater monitoring based on the following reasons:

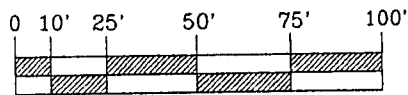
- Free product, which was previously detected in monitoring well ATMW-7, has been delineated between monitoring wells ATMW-9, ATMW-10, ATMW-11 and ATMW-12. No free product was detected in wells ATMW-9, ATMW-10, ATMW-11, ATMW-12 or ATMW-13, which either surround or are adjacent to monitoring well ATMW-7. Bailing has reduced the free product in monitoring well ATMW-7 to less than 1/8-inch.
- No free product was detected in monitoring well ATMW-13 (located approximately 18 inches north of ATMW-7), Aqua Terra recommends that monitoring well ATMW-7 be properly abandoned and monitoring well ATMW-13 be monitored for the existence of free product. Should free product exist in monitoring well ATMW-13, an automated shallow-well product recovery system will be installed within monitoring well ATMW-13 and the surrounding wells will be monitored for free product. Monitoring well ATMW-13 is a larger diameter well and will provide for better recovery of free product if it is detected.
- The vertical extent of groundwater contamination has been delineated by monitoring well ATMW-8D. Based on the analytical results, all parameters tested were BDL at a total depth of 28.5' below land surface.
- During the initial CAR activities, the highest concentration of vinyl chloride and MTBE was found in monitoring well ATMW-7 at 177 µg/l and 260 µg/l, respectively. The groundwater analytical results from monitoring wells ATMW-9, ATMW-10, ATMW-11 and ATMW-12 for both of these compounds were BDL. These results indicate that the contaminants found in the vicinity of monitoring well ATMW-7 are localized and do not pose a serious threat to the groundwater at this time or are analytical "outliers" that may not be reproducible.
- Aqua Terra recommends that a "Monitoring Only Plan" be implemented on a quarterly basis for a time period of one year. Any further action (i.e. additional groundwater monitoring or necessary remediation) will be based on the groundwater analytical results through the four quarterly groundwater sampling events.



S.W. 47TH AVENUE

EMW-2

EMW-3

EMW-4 

LEGEND:

④ - MONITORING WELL LOCATIONS

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 1: SITE MAP WITH MONITORING WELL LOCATIONS

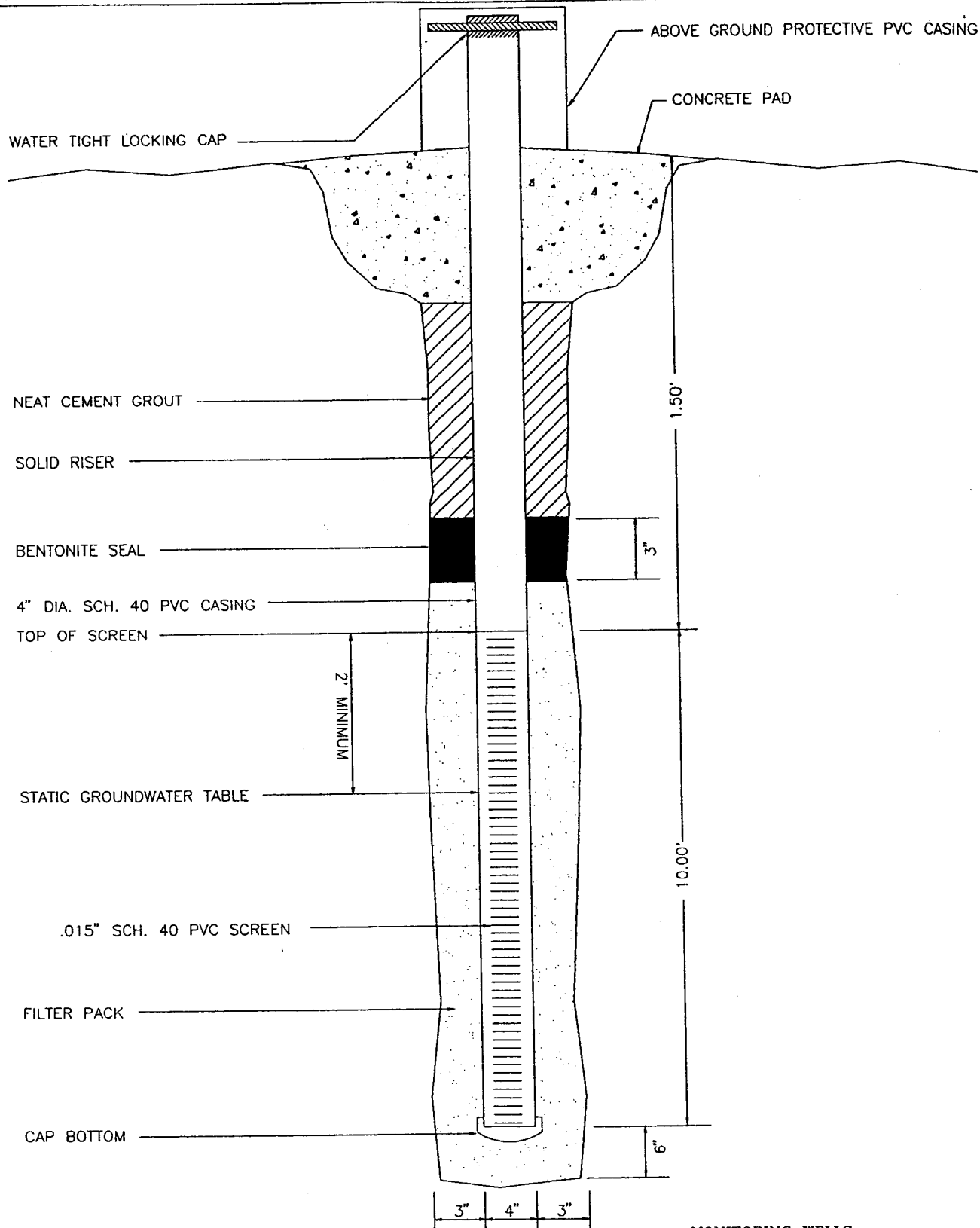
PROJECT NAME: PERMA-FIX OF FORT LAUDERDALE, INC.

ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: RKM

10/6/97

PROJ. #: AT-1260



NOT TO SCALE

MONITORING WELLS
ATMW-9, ATMW-10, ATMW-11, ATMW-12

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 2: SHALLOW WELL CONSTRUCTION PROFILE

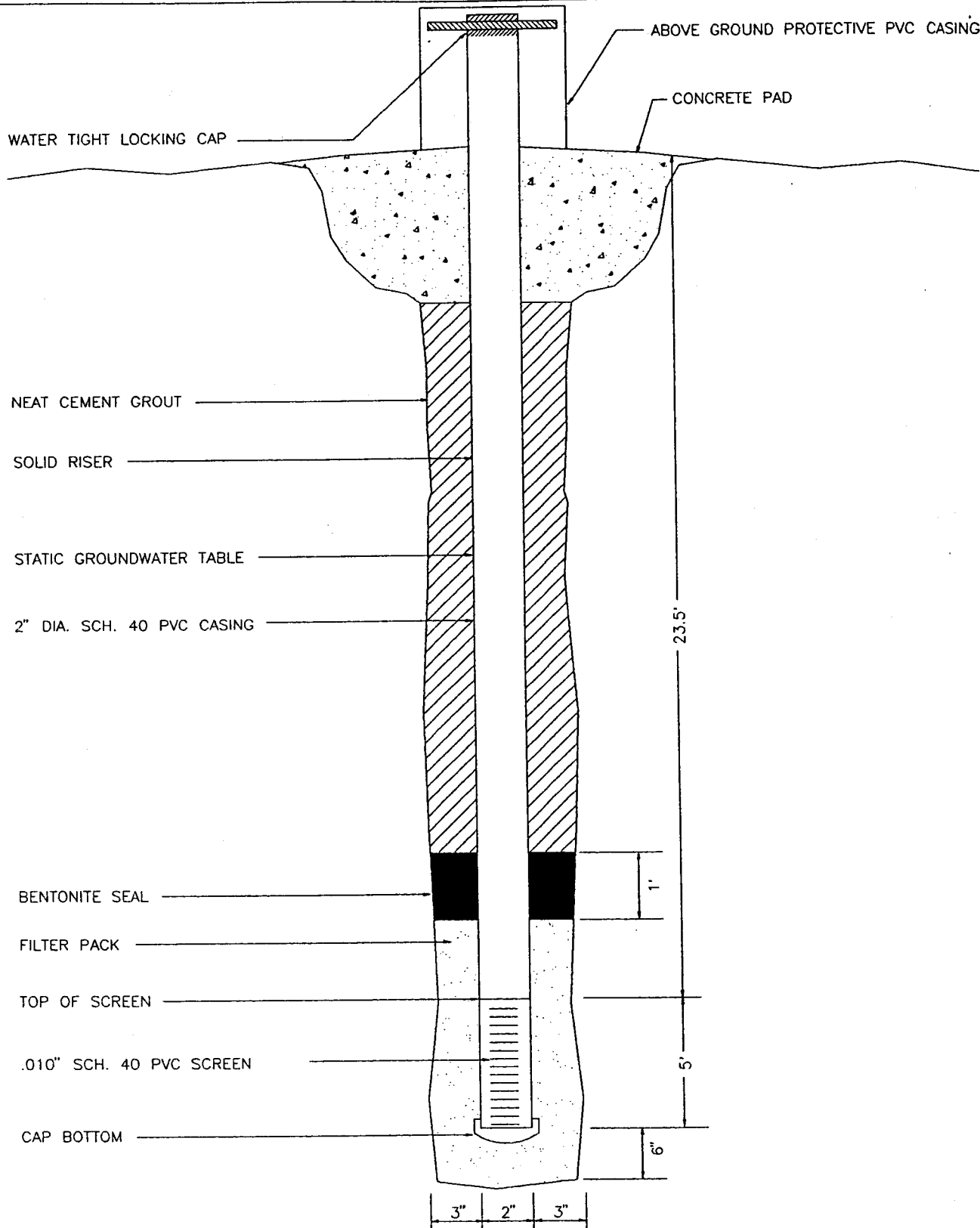
PROJECT NAME: PERMA-FIX OF FORT LAUDERDALE, INC.

ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: R.K.M.

DATE: 10/6/97

PROJ. NO. AT-1260



NOT TO SCALE

MONITORING WELL
ATMW-8D

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

FIGURE 3: DEEP WELL CONSTRUCTION PROFILE

PROJECT NAME: PERMA-FIX OF FORT LAUDERDALE, INC.

ADDRESS: 3670 S.W. 47TH AVENUE, DAVIE, FLORIDA

DRAWN BY: R.K.M.

DATE: 10/6/97

PROJ. NO. AT-1260

APPENDIX A

CORRESPONDENCE LETTERS



Department of Natural Resource Protection
Division of Pollution Prevention and Remediation Programs
218 S.W. 1st Avenue
Fort Lauderdale, FL 33301

(954) 519-1260 • FAX (954) 765-4804

August 7, 1997

Certified Mail
Z 117 043 432

Christopher Blanton, General Manager
Perma-Fix of Ft. Lauderdale, Inc.
3701 SW 47th Avenue, Ste. 109
Davie, FL 33314

Re: Contamination Assessment Report (CAR) prepared by Aqua Terra, Inc. for the Perma-Fix of Ft. Lauderdale, Inc. facility, located at 3670 SW 47th Avenue, Davie, FL 33314, dated on 07/07/97 and received on 07/08/97. EAR License No.: 429

Dear Mr. Blanton:

The Division of Pollution Prevention and Remediation Programs (Division) has completed a review of the above-referenced document. This review was performed in accordance with the requirements of Chapter 62-770 FAC. Based on the results of the review, it has been determined that the report is not approved. Please note the following comments:

1. The CAR did not define the areal and vertical extent of groundwater contamination for the Free Floating Product, Vinyl Chloride (VC), MTBE, or Lead. Please, determine the full extent of contamination caused by the initial incident and use isopleth maps to identify the current status of each pollutant.
2. Aquifer Characteristics were generalized and specific data will be required (i.e., on-site Pump Test or Slug Test) prior to the Division approving any groundwater remediation activities. Please provide Aquifer Characteristics derived through empirical data.
3. Please provide Well Completion Reports for all monitoring wells at this site.
4. Please provide the Environmental Protection Agency (EPA) analytical report on the VC contamination in the local area. Based on data in the above report, it appears that a pocket of VC contamination is concentrated around the groundwater in monitoring well ATMW-7. A complete site assessment for this pollutant will be required as part of the CAR addendum due in the time specified below.
5. The neighboring site (PMI) has made a claim that during the October 1996 oil spill incident contamination migrated offsite and impacted the groundwater on their property. Your 12/16/96 Initial Remedial Action (IRA) report noted that the incident caused surficial oil contamination at the PMI and adjacent facility to the south. However, groundwater sampling and testing were not included in the above CAR to confirm the full extent of contamination in these impacted areas. Please provide the Division with groundwater analyses (using the Used Oil Analytical Group) for these noted areas.

BROWARD COUNTY BOARD OF COUNTY COMMISSIONERS — An Equal Opportunity Employer and Provider of Services

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World Wide Web: <http://www.co.broward.fl.us/dnrp>

Christopher Blanton

08/07/97

Page 2.

Please continue to be advised that the Division requires 72 hours advanced notice, in writing, before any field work is performed on the site.

Please submit the above requested information to this office within a Contamination Assessment Report Addendum on or before **September 5, 1997**.

If you have any questions, comments, or require any additional information, please do not hesitate to contact this office for further assistance at (954) 519-1406.

Sincerely,

DIVISION OF POLLUTION PREVENTION AND REMEDIATION PROGRAMS

A handwritten signature in black ink, appearing to read "Sean McFarlane", with a long horizontal flourish extending to the right.

Sean McFarlane
Engineer II

SAM/sam

cc: Richard Meyers, Aqua Terra, Inc. ✓
Gary Stephens, Deputy Director, DNRP

h:\wpltrs\permafz.car

FILE

AQUA TERRA, INC.
ENVIRONMENTAL CONSULTANTS

August 22, 1997

Mr. Sean McFarlane
Broward County Department of
Natural Resource Protection
218 S.W. 1st Avenue
Fort Lauderdale, Florida 33301

**RE: PERMA- FIX OF FORT LAUDERDALE, INC.
3670 S.W. 47TH AVENUE, DAVIE, FLORIDA.
EAR LICENSE NO. 429
AT-1260**

Dear Mr. McFarlane:

Per your letter dated August 7, 1997 regarding the above referenced facility, Aqua Terra, Inc. (Aqua Terra) has addressed each item in the in the order in which they appear as follows:

Item #1

In an effort to define the extent of free product existing in monitoring well ATMW-7, a total of four (4) shallow wells will be installed in the vicinity of ATMW-7. These wells will be gauged to determine if free product exists, and if so, to what degree. Should more wells be necessary to delineate the free product plume, they will be installed accordingly. Additionally, a new 5-inch free product recovery well will be installed adjacent to ATMW-7 to house an automatic free product recovery system.

As stated in the Contamination Assessment Report of July 7, 1997, Aqua Terra is awaiting information regarding a United States Environmental Protection Agency (EPA) study of vinyl chloride in the general vicinity of the subject site. It is Aqua Terra's understanding that the EPA information, in all probability, will not be available until the end of September 1997. Aqua Terra requests that vinyl chloride not be considered an issue until the EPA information is available.

The only location that exceeded the allowed MTBE concentration of 50 micrograms per liter ($\mu\text{g/l}$) was monitoring well ATMW-7. Upon completing the recovery of free product using the newly installed 5-inch recovery well, ATMW-7 will be resampled for analysis of MTBE. Additionally, the wells used to delineate the free product plume can be sampled for MTBE, if necessary.

Due to that fact that some of the wells installed as part of the assessment were drying out during the development stage, these wells were not developed thoroughly. Although a low rate peristaltic pump was used when collecting groundwater samples for lead analysis, some groundwater samples collected were quite turbid. The three wells exceeding 0.05 $\mu\text{g/l}$ lead concentration (ATMW-1, ATMW-3 and ATMW-4) will be resampled for total and dissolved (filtered) lead to provide a truer representation of lead concentrations.

A deeper monitoring well (screened from 25-30 feet below land surface) will be installed between wells ATMW-2 and ATMW-6 to delineate the vertical extent of on-site contamination. The groundwater sample collected from this well will be analyzed for the Used Oil Group (EPA Methods 624 and 625, TRPH by FL-PRO, arsenic, cadmium, chromium and lead) per 62-770 of the Florida Administrative Code (FAC).

Perma-Fix of Fort Lauderdale, Inc.
3670 S.W. 47th Avenue, Davie, Florida
Page 2

Item #2

Aquifer characteristic testing will be performed as part of a Remedial Action Plan, if warranted.

Item #3

Well completion reports for all monitoring wells installed as part of this assessment have been attached.

Item #4

As mentioned previously, Aqua Terra is awaiting information regarding the EPA study involving vinyl chloride in the general vicinity of the subject site. Once available, a copy of this report will be provided to you.

Item #5

Your letter states that PMI has made a claim that the October 1996 oil spill incident, which was caused by vandalism and sabotage, migrated off-site to the PMI property and impacted their groundwater. Based on the groundwater analytical results from monitoring well EMW-1, which is located immediately north of the property boundary between the Perma-Fix and PMI properties, it is very unlikely that the spill has caused any adverse impact to PMI's groundwater. Additionally, it is Aqua Terra's understanding that groundwater contamination existed at the PMI facility prior to the spill incident. Aqua Terra will conduct research to include interpretation of groundwater analyses prior to and subsequent to the spill. Aqua Terra will prepare and submit a summary of the research conducted.

Aqua Terra hopes that this response addresses the concerns in your letter. However, based on the relatively short time frame allotted to complete the additional work, Aqua Terra requests that 45 days be granted, from the date of your response letter, to implement any requirements deemed appropriate by your department. We will wait on your reply prior to commencing any additional work. Should you have any questions or require additional information, please do not hesitate to contact me at (954) 433-8804.

Sincerely,
AQUA TERRA, INC.



Richard K. Meyers
Senior Project Scientist

cc: Chris Blanton, Perma-Fix
Tom Trebonik, Mintech, Inc.
Lorenzo Fernandez, DNRP

AQUA TERRA, INC.
AT-1260



Department of Natural Resource Protection
Division of Pollution Prevention and Remediation Programs
218 S.W. 1st Avenue
Fort Lauderdale, FL 33301

(954) 519-1260 • FAX (954) 765-4804

September 15, 1997

Certified Mail
Z 421 631 473

Christopher Blanton, General Manager
Perma-Fix of Ft. Lauderdale, Inc.
3701 SW 47th Avenue, Ste. 109
Davie, FL 33314

Re: Contamination Assessment Report (CAR) response letter prepared by Aqua Terra, Inc. for the Perma-Fix of Ft. Lauderdale, Inc. facility, located at 3670 SW 47th Avenue, Davie, FL 33314, dated on 08/22/97 and faxed on 08/22/97. EAR License No.: 429

Dear Mr. Blanton:

The Division of Pollution Prevention and Remediation Programs (Division) has completed a review of the above-referenced document. This review was performed in accordance with the requirements of Chapter 62-770 EAC. Based on the results of the review, it has been determined that the report is not approved; however, your request for a forty-five (45) day extension to complete the CAR Addendum is granted. Please note the following comments:

1. Upon completion of the field activities described in the above response letter, please define the areal and vertical extent of contamination for Free Floating Product, Vinyl Chloride (VC), MTBE and Lead. Please use isopleth maps to delineate each pollutant.
2. Aquifer Characteristics will be required prior to the Division approving any groundwater remediation activity.
3. Please provide the Environmental Protection Agency (EPA) analytical report on the VC contamination when it becomes available.
4. Please be explicit about the research conducted to interpret groundwater analysis prior and subsequent to the spill at the PMI and adjacent facilities.

Please submit the above requested information to this office within a Contamination Assessment Report Addendum on or before **October 30, 1997**.

If you have any questions, comments, or require any additional information, please do not hesitate to contact this office for further assistance at (954) 519-1406.

Mr. Christopher Blanton
September 15, 1997
Page 2

Lusa 954
Simo 519
1416

Sincerely,

DIVISION OF POLLUTION PREVENTION AND REMEDIATION . GRAMS



Sean McFarlane
Engineer II

SAM/sam

cc: Richard Meyers, Aqua Terra, Inc. ✓
Steve Somerville, Director, DNRP

h:\wpltrs\permaf2.car

APPENDIX B

**LABORATORY REPORTS AND CHAIN OF
CUSTODY DOCUMENTATION**

PRECISION ENVIRONMENTAL LABORATORY, INC.

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PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 1
October 23, 1997
Submission # 9710000313
Order # 252322
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-1
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

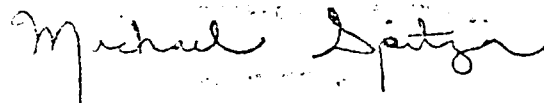
PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB
Lead, Dissolved	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.



Michael A. Spitzer, Laboratory Director

PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 2
October 23, 1997
Submission # 9710000313
Order # 252323
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-3
Collected: 10/08/97 12:20
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB
Lead, Dissolved	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.



Michael A. Spitzer, Laboratory Director

PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 3
October 23, 1997
Submission # 9710000313
Order # 252324
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-4
Collected: 10/08/97 13:05
Received: 10/08/97 16:15
Collected by: Client

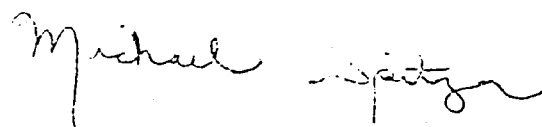
PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
cad	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB
Lead, Dissolved	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effected Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.


Michael A. Spitzer, Laboratory Director

PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 4
October 23, 1997
Submission # 9710000313
Order # 252329
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Arsenic	BDL	mg/L	SM3114B (206.3)	0.010	10/09/97	10/09/97	MB
Cadmium	BDL	mg/L	SM3113B (213.2)	0.005	10/09/97	10/09/97	CDP
Chromium	BDL	mg/L	SM3113B (218.2)	0.005	10/09/97	10/09/97	MB
Lead	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB
Lead, Dissolved	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB
8260.B Volatile Organics in Water by GC-MS			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Chloromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Vinyl Chloride	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Bromomethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Chloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Trichlorofluoromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Methylene Chloride	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
2,2-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD

PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 5
October 23, 1997
Submission # 9710000313
Order # 252329
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Chloroform	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Bromochloromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1,1-Trichloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Carbon Tetrachloride	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Benzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Trichloroethene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Bromodichloromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Dibromomethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Toluene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Trans-1,3-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1,2-Trichloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,3-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD

PERMAF000571
Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

Page 6
October 23, 1997
Submission # 9710000313
Order # 252329
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Tetrachloroethene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Dibromochloromethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromoethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
o-Xylene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Styrene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Isopropylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Bromoform	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichloropropane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
2-Chlorotoluene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
4-Chlorotoluene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Tert-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD

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Order # 252329
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Sec-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
P-Isopropyltoluene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
n-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2,4-Trichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Hexachlorobutadiene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
Naphthalene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/09/97	10/09/97	PMD
8270.C Semivolatile Organics in Water by GC-MS			MEDF	1			
N-Nitrosodimethylamine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Phenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
Bis (2-Chloroethyl) Ether	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2-Chlorophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
1,3-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
1,4-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC

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Site Location/Project
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AT-1260

Sample I.D.: ATMW-8D
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PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Benzyl Alcohol	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
1,2-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Bis (2-Chloroisopropyl) Ether	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
N-Nitrosodi-N-Propylamine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Hexachloroethane	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Nitrobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Isophorone	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2-Nitrophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
2,4-Dimethylphenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
Bis (2-Chloroethoxy)methane	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2,4-Dichlorophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
1,2,3-Trichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
1,2,4-Trichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Naphthalene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Hexachlorobutadiene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4-Chloro-3-Methylphenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC

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Site Location/Project
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AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
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PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
2-Methylphenol (o-cresol)	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
Hexachlorocyclopentadiene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
3-Methyl-Phenol (m-cresol)	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4-Methylphenol (p-cresol)	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
2,3,6-Trichlorophenol	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2,4,5-Trichlorophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
2,4,6-Trichlorophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
2-Chloronaphthalene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Dimethyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	10/09/97	10/10/97	MEC
2,6-Dinitrotoluene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Acenaphthene	BDL	ug/L	3510/8270C	3.000	10/09/97	10/10/97	MEC
2,4-Dinitrophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
2,4-Dinitrotoluene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4-Nitrophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
Diethyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Fluorene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4-Chlorophenyl Phenyl Ether	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC

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Site Location/Project
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AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
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PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,6-Dinitro-2-Methylphenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
N-Nitrosodiphenylamine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
1-Bromophenyl Phenyl Ether	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Hexachlorobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Pentachlorophenol	BDL	ug/L	3510/8270C	2.000	10/09/97	10/10/97	MEC
Phenanthrene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Anthracene	BDL	ug/L	3510/8270C	0.300	10/09/97	10/10/97	MEC
Di-N-Butyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Fluoranthene	BDL	ug/L	3510/8270C	0.300	10/09/97	10/10/97	MEC
Benzidine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Pyrene	BDL	ug/L	3510/8270C	0.300	10/09/97	10/10/97	MEC
Butyl Benzyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Benzo(A)Anthracene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC
3,3-Dichlorobenzidine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Chrysene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Bis (2 Ethylhexyl) Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Di-N-Octyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Benzo(B)Fluoranthene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC

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Site Location/Project
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AT-1260

Sample I.D.: ATMW-8D
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PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Benzo(K)Fluoranthene	BDL	ug/L	3510/8270C	0.500	10/09/97	10/10/97	MEC
Benzo(A)Pyrene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC
Indeno(1,2,3-CD)Pyrene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC
Dibenzo(A,H.)Anthracene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC
Benzo(G,H,I)Perylene	BDL	ug/L	3510/8270C	0.200	10/09/97	10/10/97	MEC
Bis-2-ethylhexyl Adipate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Aldrin	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
α -BHC	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
β -BHC	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
δ -BHC	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
γ -BHC	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Chlordane	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4,4'-DDD	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4,4'-DDE	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4,4'-DDT	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Dieldrin	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Endosulfan I	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Endosulfan II	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC

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Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-8D
Collected: 10/08/97 14:25
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Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Endosulfan Sulfate	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Endrin	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Endrin Aldehyde	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Heptachlor	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Heptachlor Epoxide	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Toxaphene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1016	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1221	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1232	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1242	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1248	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1254	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
PCB-1260	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Dioxin (screen)	BDL	ug/L	3510/8270C	10.000	10/09/97	10/10/97	MEC
Azobenzene	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Methoxychlor	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Benzoic Acid	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Aniline	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC

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AT-1260

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Collected by: Client


PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
4-Chloroaniline	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Dibenzofuran	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
3-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
4-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Carbazole	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2,6-Dichlorophenol	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
2,3,4,6-Tetrachlorophenol	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
Pyridine	BDL	ug/L	3510/8270C	5.000	10/09/97	10/10/97	MEC
FL-PRO (Petroleum Residual Organic)-{WATER}			MEDF	1			
Petroleum Range Organics (C8-C40)	0.3	mg/L	FL-PRO (DEP UST)	0.100	10/09/97	10/10/97	JT

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion, the PQL shall be used.


Michael A. Spitzer, Laboratory Director

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HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-9
Collected: 10/08/97 13:40
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
021.B VOA {602} Compounds in Water by GC			MEDF	1			
Methyl-tert-butyl-ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Benzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Toluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Ethylbenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
m & p Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
o- Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
8021.B VOH {601} Compounds in Water by GC			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Vinyl Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichlorofluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Submission # 9710000313
Order # 252330
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-9
Collected: 10/08/97 13:40
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,1-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Methylene Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Carbon Tetrachloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromodichloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-9
Collected: 10/08/97 13:40
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Trans-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Tetrachloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromoethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromoform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
4-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Order # 252330
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-9
Collected: 10/08/97 13:40
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,2,4-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Hexachlorobutadiene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.



Michael A. Spitzer, Laboratory Director

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Order # 252331
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-10
Collected: 10/08/97 12:45
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
21.B VOA {602} Compounds in Water by GC			MEDF	1			
Methyl-tert-butyl-ether	3.68	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Benzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Toluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Ethylbenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
m & p Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
o- Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
8021.B VOH {601} Compounds in Water by GC			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Vinyl Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichlorofluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-10
Collected: 10/08/97 12:45
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,1-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Methylene Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Carbon Tetrachloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromodichloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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FDEP CompQAP# 920323
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Site Location/Project
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A AT-1260

Sample I.D.: ATMW-10
Collected: 10/08/97 12:45
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,2 Trans-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2 1,3-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Tetrachloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromoethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromoform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
4-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-11
Collected: 10/08/97 14:30
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
3021.B VOA {602} Compounds in Water by GC			MEDF	1			
Methyl-tert-butyl-ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Benzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Toluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Ethylbenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
m & p Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
o- Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
3021.B VOH {601} Compounds in Water by GC			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Vinyl Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichlorofluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-11
Collected: 10/08/97 14:30
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,1-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Methylene Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Carbon Tetrachloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromodichloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-11
Collected: 10/08/97 14:30
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Trans-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Tetrachloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromoethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromoform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
4-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Chris Blanton
Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

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October 23, 1997
Submission # 9710000313
Order # 252332
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-11
Collected: 10/08/97 14:30
Received: 10/08/97 16:15
Collected by: Client

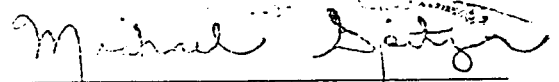
PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,2,4-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Hexachlorobutadiene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.


Michael A. Spitzer, Laboratory Director

PERMAF000571
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October 23, 1997
Submission # 9710000313
Order # 252333
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-12
Collected: 10/08/97 15:20
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
021.B VOA {602} Compounds in Water by GC			MEDF	1			
Methyl-tert-butyl-ether	1.11	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Benzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Toluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Ethylbenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
m & p Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
o- Xylene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
8021.B VOH {601} Compounds in Water by GC			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Vinyl Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichlorofluoromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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October 23, 1997
Submission # 9710000313
Order # 252333
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-12
Collected: 10/08/97 15:20
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,1-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Methylene Chloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chloroform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Carbon Tetrachloride	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Trichloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromodichloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromomethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Perma-Fix of Florida (Davie)
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October 23, 1997
Submission # 9710000313
Order # 252333
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-12
Collected: 10/08/97 15:20
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Trans-1,3-Dichloropropene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,2-Trichloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Tetrachloroethene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Dibromochloromethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromoethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Chlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Bromoform	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
2-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
4-Chlorotoluene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

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Order # 252333
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: ATMW-12
Collected: 10/08/97 15:20
Received: 10/08/97 16:15
Collected by: Client


PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,2,4-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
Hexachlorobutadiene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD
1,2,3-Trichlorobenzene	BDL	ug/L	5030/8021B	1.000	10/09/97	10/09/97	PMD

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effected Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.


Michael A. Spitzer, Laboratory Director

PERMAF000571
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Davie, FL 33314

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October 23, 1997
Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1260.B Volatile Organics in Water by GC-MS			MEDF	1			
Dichlorodifluoromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Chloromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Vinyl Chloride	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Bromomethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Chloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Trichlorofluoromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Methylene Chloride	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Trans-1,2-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1-Dichloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
2,2-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Cis-1,2-Dichloroethene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Chloroform	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Bromochloromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1,1-Trichloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD

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October 23, 1997
Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Carbon Tetrachloride	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Benzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2-Dichloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Trichloroethene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Bromodichloromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
2-Chloroethylvinyl Ether	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Dibromomethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Cis-1,3-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Toluene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Trans-1,3-Dichloropropene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1,2-Trichloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,3-Dichloropropane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Tetrachloroethene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Dibromochloromethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2-Dibromoethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Chlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD

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Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,1,1,2-Tetrachloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
o-Xylene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Styrene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Isopropylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Bromoform	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,1,2,2-Tetrachloroethane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2,3-Trichloropropane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
2-Chlorotoluene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
4-Chlorotoluene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Tert-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Sec-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
P-Isopropyltoluene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,3-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,4-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
n-Butylbenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD

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October 23, 1997
Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
1,2-Dichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2-Dibromo-3-Chloropropane	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2,4-Trichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Hexachlorobutadiene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
Naphthalene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
1,2,3-Trichlorobenzene	BDL	ug/L	5030/8260B	1.000	10/10/97	10/10/97	MD
270.C Semivolatile Organics in Water by GC-MS			MEDF	1			
N-Nitrosodimethylamine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Phenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
Bis (2-Chloroethyl) Ether	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2-Chlorophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
1,3-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
1,4-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Benzyl Alcohol	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
1,2-Dichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Bis (2-Chloroisopropyl) Ether	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
N-Nitrosodi-N-Propylamine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Hexachloroethane	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD

PERMAF000571
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Perma-Fix of Florida (Davie)
3701 S.W. 47th Avenue, #109
Davie, FL 33314

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October 23, 1997
Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Nitrobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Isophorone	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2-Nitrophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
2,4-Dimethylphenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
Bis (2-Chloroethoxy)methane	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2,4-Dichlorophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
1,2,3-Trichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
1,2,4-Trichlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Naphthalene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Hexachlorobutadiene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Chloro-3-Methylphenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2-Methylphenol (o-cresol)	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
Hexachlorocyclopentadiene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
3-Methyl-Phenol (m-cresol)	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Methylphenol (p-cresol)	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
2,3,6-Trichlorophenol	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD

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Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
2,4,5-Trichlorophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
2,4,6-Trichlorophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
2-Chloronaphthalene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Dimethyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	10/10/97	10/10/97	PMD
2,6-Dinitrotoluene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Acenaphthene	BDL	ug/L	3510/8270C	3.000	10/10/97	10/10/97	PMD
2,4-Dinitrophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
2,4-Dinitrotoluene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Nitrophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
Diethyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Fluorene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Chlorophenyl Phenyl Ether	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4,6-Dinitro-2-Methylphenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD
N-Nitrosodiphenylamine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Bromophenyl Phenyl Ether	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Hexachlorobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Pentachlorophenol	BDL	ug/L	3510/8270C	2.000	10/10/97	10/10/97	PMD

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Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Phenanthrene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Anthracene	BDL	ug/L	3510/8270C	0.300	10/10/97	10/10/97	PMD
Di-N-Butyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Fluoranthene	BDL	ug/L	3510/8270C	0.300	10/10/97	10/10/97	PMD
Benzidine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Pyrene	BDL	ug/L	3510/8270C	0.300	10/10/97	10/10/97	PMD
Butyl Benzyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Benzo(A)Anthracene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD
3,3-Dichlorobenzidine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Chrysene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Bis (2 Ethylhexyl) Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Di-N-Octyl Phthalate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Benzo(B)Fluoranthene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD
Benzo(K)Fluoranthene	BDL	ug/L	3510/8270C	0.500	10/10/97	10/10/97	PMD
Benzo(A)Pyrene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD
Indeno(1,2,3-CD)Pyrene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD
Dibenzo(A,H,)Anthracene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD
Benzo(G,H,I)Perylene	BDL	ug/L	3510/8270C	0.200	10/10/97	10/10/97	PMD

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Submission # 9710000313
Order # 252338
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Bis-2-ethylhexyl Adipate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Aldrin	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
α -BHC	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
β -BHC	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
δ -BHC	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
γ -BHC	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Chlordane	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4,4'-DDD	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4,4'-DDE	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4,4'-DDT	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Dieldrin	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Endosulfan I	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Endosulfan II	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Endosulfan Sulfate	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Endrin	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Endrin Aldehyde	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Heptachlor	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Heptachlor Epoxide	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD

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FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Toxaphene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1016	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1221	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1232	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1242	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1248	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1254	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
PCB-1260	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Dioxin (screen)	BDL	ug/L	3510/8270C	10.000	10/10/97	10/10/97	PMD
Azobenzene	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Methoxychlor	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Benzoic Acid	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Aniline	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Chloroaniline	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Dibenzofuran	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
3-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
4-Nitroaniline	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD

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HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Bailer Equip. Blank
Collected: 10/08/97 12:10
Received: 10/08/97 16:15
Collected by: Client

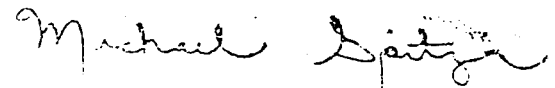
PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Carbazole	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2,6-Dichlorophenol	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
2,3,4,6-Tetrachlorophenol	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
Pyridine	BDL	ug/L	3510/8270C	5.000	10/10/97	10/10/97	PMD
FL-PRO (Petroleum Residual Organic)-{WATER}			MEDF	1			
Petroleum Range Organics (C8-C40)	BDL	mg/L	FL-PRO (DEP UST)	0.100	10/11/97	10/12/97	JT

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effectuated Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.



Michael A. Spitzer, Laboratory Director

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Perma-Fix of Florida (Davie)
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Davie, FL 33314

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Submission # 9710000313
Order # 252339
FDEP CompQAP# 920323
HRS Certification# E86349, 86413

Site Location/Project
3670 SW 47 Ave., Davie
AT-1260

Sample I.D.: Tubing Equip. Blank
Collected: 10/08/97 12:40
Received: 10/08/97 16:15
Collected by: Client

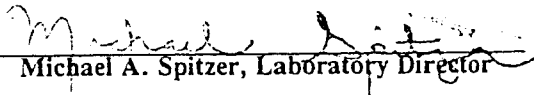
PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Arsenic	BDL	mg/L	SM3114B (206.3)	0.010	10/09/97	10/09/97	MB
Cadmium	BDL	mg/L	SM3113B (213.2)	0.005	10/09/97	10/09/97	CDP
Chromium	BDL	mg/L	SM3113B (218.2)	0.005	10/09/97	10/09/97	MB
Lead	BDL	mg/L	SM3113B (239.2)	0.005	10/09/97	10/09/97	MB

BDL: Indicates Analyte is Below Detection LimitMEDF: Matrix Effect Dilution Factor***

Work Subcontracted to Outside Labs Denoted by HRS Cert ID in Analyst Field

Qualifier following result conforms to FAC 62-160 Table 7**Unless otherwise noted, mg/Kg denotes wet weight***

***62-770: If the MDL using the most sensitive and currently available technology is higher than a specific criterion,
the PQL shall be used.


Michael A. Spitzer, Laboratory Director

Submission Code: _____		PRECISION ENVIRONMENTAL LABORATORY CHAIN OF CUSTODY RECORD (DEP 62-770.900 (modified form))					FDEP Facility No. _____										
Orders: _____		10200 USA TODAY WAY, MIRAMAR, FLORIDA 33025 (954) 431-4550 • NAT'L WATS (800) LAB-8550 • FAX (954) 431-1959					Page <u>1</u> of <u>1</u>										
Entered to file: _____		Original - Return w/Report Yellow - Lab Copy Pink - Sampler Copy					Sampling Comp/QAP NO. _____										
Report To: <u>Perma-Fix Env. Services / Fax to Aqua Terra, Inc.</u>		Report To Address: <u>3701 S.W. 47th Ave., Ste. 109, Davie, FL 33314</u>															
Bill To: <u>Perma-Fix Env. Services</u>		Billing Address: <u>3701 S.W. 47th Ave., Ste. 109, Davie, FL 33314</u>															
Project Number/Name: <u>AT-1260</u>		Site Location: <u>3670 SW 47th Ave</u>					Davie, FL 33314										
Project Contact: <u>Richard Meyers (Aqua Terra)</u>		Phone: <u>(954) 433-8804</u>		FAX: <u>(954) 433-8913</u>		Davie, FL 33314											
Alternate Contact: <u>Chris Blanton (Perma-Fix)</u>		Phone: <u>(954) 583-3795</u>		FAX: <u>(954) 583-8017</u>													
Sampled By (print): _____		Sampler's Signature: _____															
I T E M	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	pH	T E M P °C	C O N D	MATRIX DW SW GW SED S EFF HW BIO SA	SAMPLE LOCATION/ JOB DESCRIPTION (optional if needed when samples are from different site locations)	# C O N T A I N E R S	ANALYSIS REQUIRED						Sample Condition as Received:	
										PLACE NAME OR METHOD NUMBER OF TESTS NEEDED IN LARGE BOXES BELOW. (✓) CHECK OFF WHICH SAMPLE ITEMS NEED EACH TEST PERFORMED						Temp _____ C	Sealed Yes No
										8260/ 8270	FL- PRO	Total As, Cd, Cr.	Total Pb	Dissolved Lead (Pb)	MTBE and Vinyl chloride	Lot Number of Sampling Containers Used	
1	ATMW-1	10/8/97	12:10				GW		2				X	X		10/10/97 6:28 PM	
2	ATMW-3		12:20				GW		2				X	X		10/10/97 9:17 PM	
3	ATMW-4		13:05				GW		2				X	X		10/10/97 9:16 PM	
4	ATMW-8D		14:25 14:40				GW		6	X	X	X	X	X			
5	ATMW-9		13:40				GW		2						X		
6	ATMW-10		12:45				GW		2						X		
7	ATMW-11		14:30				GW		2						X		
8	ATMW-12		15:20				GW		2						X		
9	Equip. Blank		12:10				Blank		4	X	X						
10	Equip. Blank		12:40				Blank		1			X	X				

Special Comments: _____

Total # of Containers: 25

QA/QC Report Needed?: Yes ☐ No ☒ (See price guide for applicable fees)

Report Format: Standard Other (specify) _____

(1) Relinquished by Signature: <u>[Signature]</u>		Date: <u>10-6-97</u>		(2) Relinquished by Signature: <u>[Signature]</u>		Date: <u>10/3/97</u>		DUE DATE REQUESTED: Confirmation # _____	
Company: <u>PEL</u>		Time: <u>18:00</u>		Company: <u>Aqua Terra, Inc.</u>		Time: <u>16:15</u>		Coating Code: _____ O/L/D _____	
(1) Received by Signature: <u>[Signature]</u>		Date: <u>10/7/97</u>		(2) Received by Signature: <u>[Signature]</u>		Date: <u>10-8-97</u>		Misc. Charges _____	
Company: <u>Aqua Terra, Inc.</u>		Time: <u>18:00</u>		Company: <u>PEL</u>		Time: <u>16:15</u>		SHADED AREAS ARE FOR LAB USE ONLY	

APPENDIX C

EXCERPTS FROM THE UNITED STATES EPA DRAFT REMEDIAL INVESTIGATION REPORT FOR THE FLORIDA PETROLEUM REPROCESSORS SITE

Draft

Remedial Investigation Report

for the

Florida Petroleum
Reprocessors Site

Davie, Broward County, Florida

Prepared for
United States
Environmental
Protection Agency



September 1997

FASP Mobile Laboratory

Based on the screening results, select samples were analyzed by the FASP mobile laboratory for tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, and vinyl chloride. Mobile laboratory data helped determine future sampling locations and confirm screening GC results.

CLP

Following analysis by the mobile laboratory, a select group of samples was shipped offsite for full-scan analysis by a CLP laboratory. Samples that were suspected to contain high concentrations of contaminants were also shipped offsite for analyses. A comprehensive list of all soil samples, analyses, and methods is presented in Appendices G and H.

2.3 GROUNDWATER INVESTIGATION

The primary focus of the groundwater investigation was to:

- Determine the areal and vertical extent of DNAPLs in site groundwater.
- Characterize the chemical composition of DNAPLs in the groundwater.
- Identify and evaluate release and transport mechanisms controlling the migration of dissolved phase contaminants from site source materials.
- Determine the areal extent, thickness, and composition of the LNAPL plume floating on the water table in the shallow subsurface beneath the site.
- Evaluate impacts of petroleum-related constituents on shallow groundwater quality.
- Support the development of a comprehensive BRA that evaluates human health and ecological risks.

2.3.1 Onsite Well Installation and Sampling

Twenty-nine temporary piezometers were installed (Figure 2-1) to depths ranging from 6 to 10 ft BLS. Each piezometer was developed, and most were sampled for analysis by the field GC and mobile laboratory. Based on the screening results, 2-in. piezometers were installed in five soil borings (SB07–SB11) in the source area and used to collect product from the shallow groundwater zone. Appendix I presents construction summaries for piezometers and new monitoring wells.

Three multiport wells, each with four separate completion zones, were installed near the source area (Figure 2-2). Groundwater samples were collected and shipped offsite for analysis of organic and inorganic parameters, and the resultant data were used to determine the vertical contaminant profile for the FPR site. Appendix J includes a summary of all groundwater samples obtained from the temporary piezometers and new multiport wells.

Existing FPR monitoring wells (Figure 2-2) were sampled to support the determination of the vertical contaminant profile and indicate contaminant migration when compared to historical data. A summary of samples collected from existing onsite wells is presented in Appendix K.

All of the onsite monitoring wells, with the exception of the piezometers, were purged and sampled using a peristaltic pump. Upon completion of purging, samples were collected using disposable Teflon® bailers.

2.3.2 Offsite Well Installation and Sampling

Eight new monitoring wells were installed at four offsite locations (Figure 2-4) to delineate the southern boundary of the plume and identify other possible contributors to the VOC contamination south of the site. Each well pair consists of a shallow well completed at 60 ft BLS and a deep well completed at 140 ft BLS. These depths were found to contain zones of contamination identified during earlier investigations (Bechtel 1996). Groundwater samples from each new well were shipped offsite for organic and inorganic analyses.

Groundwater samples were also collected from 50 existing Peele-Dixie monitoring wells to indicate contaminant migration when compared to historical data and delineate the groundwater chemistry in the area. A comprehensive list of samples obtained from existing wells is presented in Appendix J.

Sixteen additional groundwater samples were collected from existing wells on the properties of Wheelabrator South Broward, Inc., Perma-Fix Environmental Services, Inc., and Davie Concrete (Appendix K) to determine the presence of VOC sources in areas south of the site.

2.3.3 Groundwater Sample Analyses

All groundwater samples, with the exception of samples collected from the onsite piezometers, were field-screened for alkalinity, ferrous iron, hydrogen sulfide, and total chloride. These analyses, in conjunction with the laboratory analyses for anions/cations, provided data used in assessing the natural attenuation of the chlorinated ethenes at the site. Parameters measured during purging included pH, oxidation/reduction potential, temperature, turbidity, dissolved oxygen, and specific conductivity. These parameters indicated the general groundwater quality in the area and determined the representativeness of the groundwater to be sampled.

Groundwater samples collected from onsite piezometers and newly installed multiport well clusters were screened by the field GC and mobile laboratory. Based on the results, samples were selected for additional CLP laboratory analyses including semivolatile compounds (SVOCs), pesticides, PCBs, and total metals.

2.3.4 Water Level Measurements

Water levels were measured twice during the investigation (Appendix L), first before investigative activities at the site began and again after installation of all new monitoring wells and piezometers. The water level data will be used to determine the area hydraulic gradient and flow direction. Potentiometric maps for the shallow and deep groundwater zones at the site are presented in Section 3.0.

LEGEND

- EXISTING MONITORING WELL
- ◊ NEW MONITORING WELL
- PF PERMA-FIX ENVIRONMENTAL SERVICES, INC.
- DC DAVIE CONCRETE
- WI WHEELABRATOR SOUTH BROWARD, INC.

0 1600 3200

SCALE IN FEET

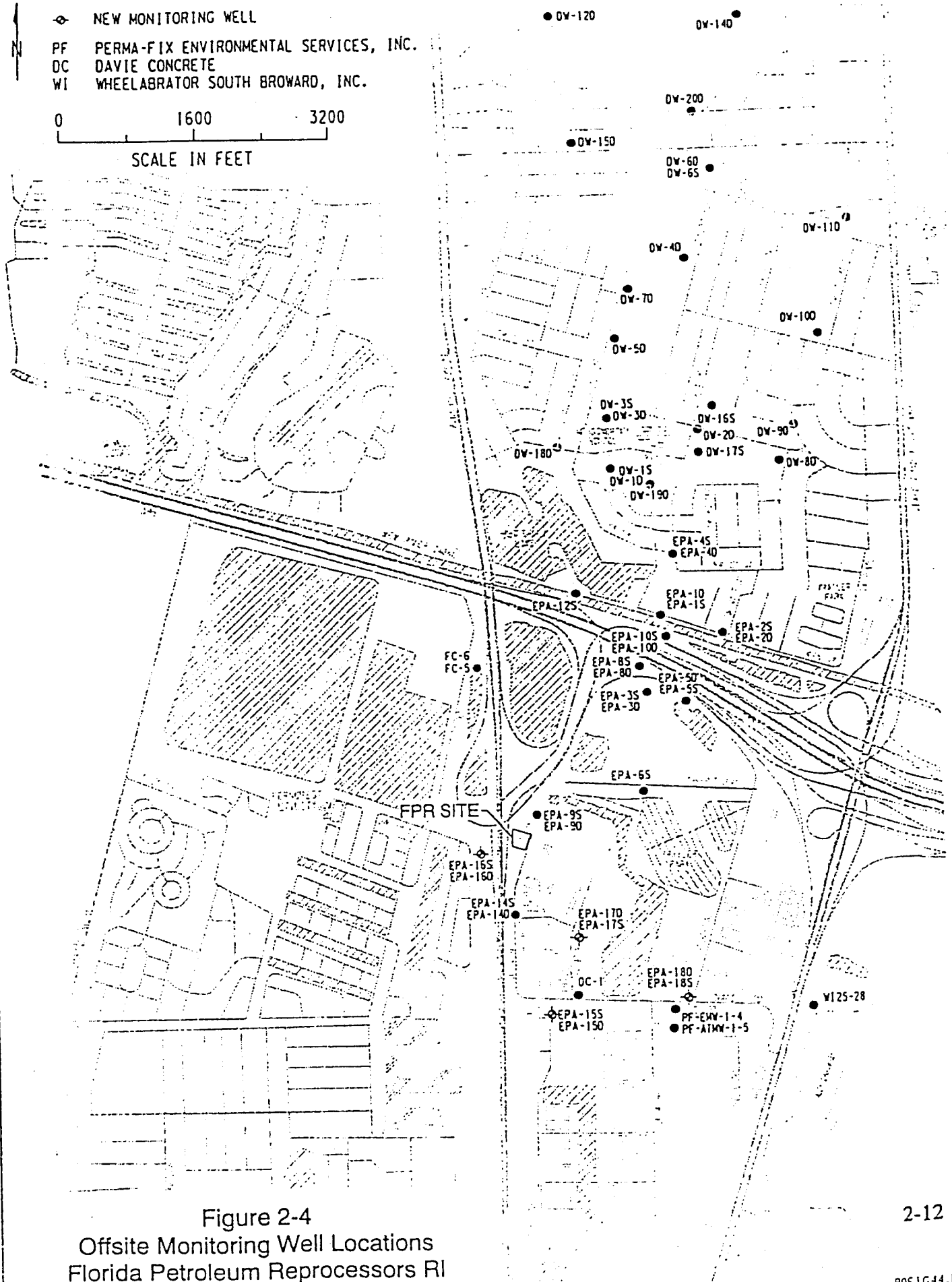


Figure 2-4
Offsite Monitoring Well Locations
Florida Petroleum Reprocessors RI

- Several secondary preferential flow pathways associated with geologic contacts have been identified, at about elevation -25 ft MSL and between elevation -50 and -60 ft MSL. However, these pathways are interpreted to be discontinuous at the study area scale, at least in part because of erosional truncation of geologic formations. The pathway at -50 to -60 ft MSL corresponds to the shallow monitoring zone and the zone at -25 ft MSL corresponds to the very shallow monitoring zone.
- Surface water interaction with the shallow and deep monitoring zones appears to be insignificant.
- Groundwater flow directions in the shallow and deep monitoring zone have been found to vary seasonally and historically with changes in pumping at the Peele-Dixie wellfield.
- Vertical flow potentials vary spatially within the study area, with persistent downward flow potentials at the Peele-Dixie wellfield and near the FPR site, while persistent upward flow potentials have been observed at the areas in between.

Figure 3-29 summarizes these key elements of the conceptual model.

3.7 DEMOGRAPHY AND LAND USE

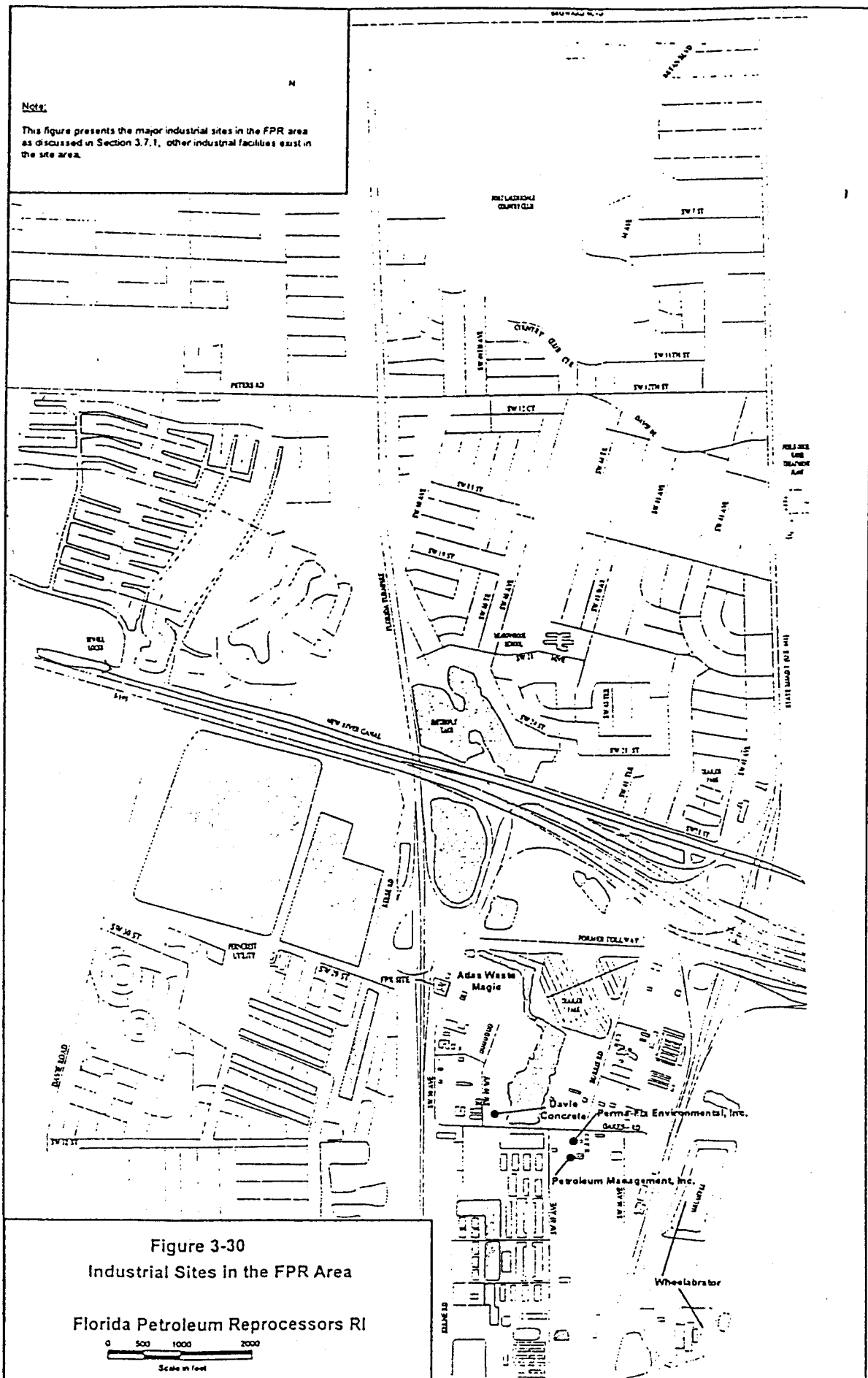
Broward County is in southeast Florida and has a total land area of 1,197 square miles—787 square miles are within the Conservation Area and 410 square miles are developable.

Broward County has experienced rapid resident population growth. The population was 620,100 in 1970, 1,018,200 in 1980, and 1,255,488 in 1990. The County Planning Division projects that the population will increase to 1,482,345 by the year 2000, 1,660,877 by 2010, and 1,822,995 by 2020.

3.7.1 Current Land Use

The area surrounding the FPR site is urban and heavily populated, and much of the land is used for industrial and residential purposes. Approximately 165,234 people live within 4 miles of the site (Black and Veatch 1997). The nearest school is Meadowbrook School, 1 mile north of the site.

Among the many industries in the immediate area are several which either currently or have previously managed and/or stored waste material. For that reason alone, the following industrial facilities were included in the remedial investigation: Atlas Waste Magic Facility, Wheelabrator South Broward, Inc., Perma-Fix Environmental Services, Inc., Petroleum Management, Inc., and Davie Concrete. The locations of these facilities are shown on Figure 3-30.



Atlas Waste Magic Facility

The National Resource Recovery facility at 3250 Fields Road in Davie is currently occupied by Atlas Waste Magic, a recycling and construction/demolition debris disposal company. Approximately 20 acres of the property are used for recycling, and the remaining 11 acres consist of a lake which is currently being filled in with construction debris. The lake borders the northern and eastern portions of the property. These portions of the site contain large berms at the perimeter of the lake surface; the tops of the berms are approximately 20 ft above the lake surface. Twin Lake Trailer Park is east of the site across the lake. The site layout is shown in Figure 3-31.

During the week of June 24, 1996, EPA conducted a site inspection at the facility (Black and Veatch 1997). Results of surface soil sampling revealed elevated concentrations of numerous inorganics and organics indicating surficial contamination onsite. Analyses of groundwater samples revealed the presence of the following contaminants that can be attributed to facility operations: arsenic, antimony, barium, chromium, cobalt, manganese, mercury, nickel, vanadium, acenaphthene, phenanthrene, and carbazole. Analyses of sediment samples indicated concentrations of cobalt, manganese, cadmium, lead, selenium, benzo(b and/or k)fluoranthene, benzo(a)pyrene, indeno (1,2,3-cd)pyrene, 4,4'-DDT, and bis(2-ethylhexyl)phthalate. Air samples were not collected, though an odor control system (perfume pump) had earlier been installed in response to complaints from nearby residents concerning the strong odors emanating from the site.

Wheelabrator South Broward, Inc.

In the late 1980s, Broward County contracted with subsidiaries of Wheelabrator Environmental Systems, Inc., to design, construct, and operate two waste-to-energy plants. The primary functions of each plant are to provide an environmentally safe and cost-effective solid waste disposal solution; recover energy and recyclable ferrous metals; and reduce the quantity of waste subject to landfilling. The South plant opened in 1991 at 4400 South State Road 7, 1.4 miles southeast of the FPR site.

According to the Broward County Office of Integrated Waste Management, the South plant is capable of processing 2,250 tons/day. Although the facility is expandable by 33 percent, there are no current plans for expansion. The plant utilizes processes and technologies that are relatively simple and straightforward. The waste is trucked into the facility and loaded into furnace hoppers, where it is burned at a minimum temperature of 1,800°F. The hot gases are passed from the boiler through a scrubber and mixed with lime to neutralize any acids and produce particles that are collected in the baghouse. The cooled and cleaned gases are vented through a stack flue topping out at 200 ft above the ground. All processing activities take place indoors to control dust and odors, and to prevent rain from coming in contact with either waste or ash. Metals in the ash are removed and recycled, and the remaining ash is landfilled in an area adjacent to the facility. The monofill was constructed with multiple liners to prevent groundwater contamination. The leachate collected by the liner system is either used in the plant to produce electricity or sent to a sewage treatment plant for disposal.

Perma-Fix Environmental Services, Inc.

Perma-Fix Environmental Services is located at 3701 SW 47th Avenue, approximately 0.4 mile from the FPR site. The facility receives, filters, separates, blends, and temporarily stores used oils for subsequent resale, primarily as a fuel. Perma-Fix also has a plant for treatment of various types of nonhazardous wastewaters. The facility has an extensive network of shallow monitoring wells, all of which were sampled during the FPR RI field investigation. Results from this sampling are presented in Section 4.2.

Petroleum Management, Inc.

Petroleum Management, Inc. (PMI) is located at 4700 Oakes Road, 0.3 mile from the FPR site. PMI also handles used oil and reportedly conducts or supports a variety of environmental cleanup activities, such as the removal of underground tanks and contaminated soils. During the FPR field investigation, an attempt was made to sample PMI monitoring wells; however, the wells were not functioning properly (e.g., many had been plugged with concrete), or they were otherwise damaged so as to preclude the collection of representative groundwater samples.

Davie Concrete

Davie Concrete, Inc. operates a large concrete batch plant at 3570 SW 49th Way, less than 0.5 mile from the site. The facility has stockpiles of aggregate and sand, cement storage silos, and the physical plant used for mixing and transferring concrete to trucks. The facility has a water supply well that provides the water used for preparation of concrete. This well was sampled during the FPR RI field investigation.

3.7.2 Future Land Use

The FPR site is in an industrial park that does not appear to be under much development pressure. Recent development in the area, along Oakes Road south of the site, has consisted of light industry/warehouse/commercial office parks. There are undeveloped parcels nearby (to the south) and new land areas are being created through the filling of borrow pit lakes. Neither the City of Davie nor Broward County has publicized any specific plans regarding future development of the areas surrounding the site. It was assumed that the area would remain industrial for the foreseeable future.

3.7.3 Water Supply in Vicinity of Site

Nine municipal water supply systems have wells near (defined as within 4 miles) the FPR site. The City of Fort Lauderdale obtains potable water from the Prospect wellfield and the North Peele-Dixie wellfield, the latter of which is located within 4 miles of the site. Groundwater production in the southern portion of the Peele-Dixie wellfield ceased in 1987 due to the presence of VOCs at levels that exceeded federal and state maximum contaminant levels (production wells P-17 and -18 resumed pumping in 1995). Water in the North Peele-Dixie wellfield is mixed with groundwater obtained from the Prospect wellfield north of Fort Lauderdale and is distributed to 55,000 connections in the city (Black and Veatch 1997). Multiplying the number of connections by the 1990 U.S. Bureau of the Census average "persons-per-household" value of 2.35 for Broward County,

Wellfield and changes in groundwater flow patterns following shutdown of the southern wellfield that have led to a significant shift in contaminant migration vectors, from north-northeast to south-southeast.

Equally important were hydrogeologic considerations, most significantly the absence of any apparent horizontal flow boundaries for groundwater in the Biscayne Aquifer. As stated in Section 3.0, the hydraulic influence of the North New River Canal and assorted borrow pit lakes lying between FPR and the Peele-Dixie wellfield does not appear to extend to the depths where FPR-derived contamination is migrating through the aquifer. Underflow beneath the canals and lakes is obviously occurring, based on the spatial distribution of contamination historically observed in monitoring wells bordering offsite surface water features. For these reasons, all of the offsite areas were assumed to be contiguous from a groundwater circulation perspective.

4.2.1 Offsite Groundwater

Evaluation of offsite groundwater contamination was based primarily on results from analyses of samples from 72 offsite monitoring wells and 1 nearby production well during the FPR RI field investigation. Table 4-13 presents information concerning installation and construction details for the wells that were sampled.

**Table 4-13
Offsite Monitoring Wells Sampled for FPR RI**

Group	No. and Type Wells	Completion Depths	Comments
DW Wells	17 Deep 5 Shallow	Deep: 130-140 ft Shallow: 50-60 ft	Installed by JMM in 1992 for P-D wellfield contamination assessment
EPA Wells	16 Deep 15 Shallow 2 Misc. depth	Deep: 130 ft Shallow: 50-60 ft Very Deep (VD): 190-200 ft Very Shallow (VS): 10-20 ft	25 wells were installed for Peele-Dixie RI in 1994 and 1995; 8 additional wells installed in 1997 for FPR RI
Ferncrest Wells	1 Deep 1 Shallow	Deep: 160 ft Shallow: 80 ft	Installed by Ferncrest Utilities
Wheelabrator	One 4-well cluster monitoring 4 separate zones	Deep: 95-105 ft Deep/Intermediate: 55-65 ft Shallow/Intermediate: 35-45 ft Shallow: 15-25 ft	Part of the monitoring well network for the ash monofill associated with the Broward County waste-to-energy facility on US 441
Perma-Fix	11 Water table wells	Various depths (10-14 ft)	Monitoring well network for the Perma-Fix facility on Oakes Rd
Davie Concrete	1 Water supply well	Depth unknown; reported to be approximately 90 ft	Water supply well for Davie Concrete batch plant on Oakes Rd

The groundwater analysis also incorporates relevant historical data from previous sampling activities conducted as part of investigations into contamination at the Peele-Dixie wellfield. These activities were part of the following studies.

- Site Screening Investigation for the Meadowbrook Elementary School Dump, conducted by NUS for EPA in September 1988
- Peele-Dixie Wellfield Contamination, Groundwater Investigation Report No. 88-12, by FDER, December 1988
- Contamination Assessment for the Continued Use of the Peele-Dixie Wellfield, completed for the City of Fort Lauderdale by James M. Montgomery Consulting Engineers, December 1992
- Site Characterization Report and Site Characterization Report Addendum, conducted for EPA's Peele-Dixie RI by Bechtel in 1994–1996 (Bechtel 1995 and 1996)

The following discussion focuses on analytical results for chlorinated VOCs, the principal contaminants of interest for both the FPR site and the Peele-Dixie wellfield contamination problem. With few exceptions, these were the contaminants most commonly detected in groundwater. A complete set of analytical results for all of the offsite samples is presented in Appendix R. This section is organized into separate subsections for the Peele-Dixie plume and the FPR plume. The Peele-Dixie plume includes offsite areas generally to the north of the FPR site; the FPR plume includes areas to the east, west, and south of the FPR site.

Peele-Dixie Plume (Areas North of FPR Site)

Groundwater contamination north of the FPR site has been extensively characterized as part of the various Peele-Dixie plume studies described in Section 1. Contamination was originally detected in the wellfield in December 1986, when a sample from production well PW-18 was found to contain about 300 mg/L of 1,2-DCE. Linkage with the FPR site was not apparent until monitoring well EPA9S/D was installed in 1995, which led to the initial investigation of the FPR property and subsequent identification of a DNAPL source at the site.

Deep Aquifer Zone

RI sampling results from deep monitoring wells north of the FPR site identified a number of VOCs (Table 4-14). A summary of the chlorinated VOCs detected during the RI sampling is presented in Table 4-15. In contrast to the onsite groundwater, TCE and 1,1,1-TCA were either rarely detected or not detected at all. The composition of contaminants in the deep groundwater was instead dominated by the TCE/TCA degradation products, including 1,1-DCA, 1,2-DCE, 1,1-DCE, and vinyl chloride. Contamination levels in the deep zone (130–140 ft) of the Biscayne Aquifer north of the FPR site have continued to decline since the last comprehensive sampling event completed in 1995 (conducted for the Peele-Dixie RI), but a distinct plume can still be mapped extending from the FPR site northward into the Peele-Dixie wellfield (Figure 4-26). The long axis of the plume is approximately 8,000 ft; the width decreases from 2,800 ft just north of FPR to about 1,300 ft over most of the wellfield. Higher levels of contamination (>100 mg/L) were generally detected in wells south of the North New River Canal. With the exception of EPA-1D, located on the northern bank of the canal, chlorinated VOC concentrations were 10 mg/L or less.

The plume still extends over much of the southern wellfield, with low levels of contamination (10 mg/L of 1,2-DCE) detected as far north as PW-14. Based on the March–May 1997 sampling

Appendix R

Analytical Results of the 1997 Florida Petroleum Reprocessors RI Investigation

<u>Group</u>	<u>SubGroup</u>	<u>Name</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>
Existing Wells	Miscellaneous Compounds	EPA-4SD	1 UNIDENTIFIED COMPOUND	400 J	UG/L
		EPA-5D	1 UNIDENTIFIED COMPOUND	20 J	UG/L
		EPA-5S	1 UNIDENTIFIED COMPOUND	10 J	UG/L
		EPA-7D	1 UNIDENTIFIED COMPOUND	70 J	UG/L
		EPA-8S	2 UNIDENTIFIED COMPOUNDS	30 J	UG/L
		EPA-8VS	2 UNIDENTIFIED COMPOUNDS	60 J	UG/L
		EPA-9D	TRICHLOROPROPENE	20 JN	UG/L
		EPA-9S	1 UNIDENTIFIED COMPOUND	20 J	UG/L
		FC-5	1 UNIDENTIFIED COMPOUND	20 J	UG/L
		EPA-15S	METHYL(METHYLETHYL)BENZ	6 JN	UG/L
		EPA-17S	LINALYL PROPANOATE	4 JN	UG/L
			METHYLHYDROXYPROPANOI	2 JN	UG/L
	Miscellaneous Compounds	DC-1	1 UNIDENTIFIED COMPOUND	200 J	UG/L
		PF-ATMW-3	1 UNIDENTIFIED COMPOUND	40 J	UG/L
		PF-ATMW-6	1 UNIDENTIFIED COMPOUND	30 J	UG/L
	VOLATILES	DW-11D	CARBON DISULFIDE	2 J	UG/L
		DW-19D	1,2-DICHLOROETHENE (TOTA	10 J	UG/L
			1,1-DICHLOROETHANE	2 J	UG/L
			1,1-DICHLOROETHENE (1,1-DI	1 J	UG/L
		DW-2D	CARBON DISULFIDE	2 J	UG/L
			1,2-DICHLOROETHENE (TOTA	7 J	UG/L
		DW-3D	ACETONE	140	UG/L
		DW-4D	CHLOROMETHANE	4 J	UG/L
			ACETONE	93	UG/L
			1,2-DICHLOROETHENE (TOTA	9 J	UG/L
		DW-6D	CHLOROFORM	10 J	UG/L

<u>Group</u>	<u>SubGroup</u>	<u>Name</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>
		EPA-17S	BROMODICHLOROMETHANE	2 J	UG/L
			CHLOROFORM	13	UG/L
		EPA-18D	1,1-DICHLOROETHANE	5 J	UG/L
			1,1-DICHLOROETHANE	10	UG/L
			1,1-DICHLOROETHENE (1,1-DI	3 J	UG/L
			1,2-DICHLOROETHENE (TOTA	17	UG/L
			CHLOROFORM	3 J	UG/L
			VINYL CHLORIDE	32	UG/L
			CIS-1,2-DICHLOROETHENE	14	UG/L
		EPA-18S	CHLOROFORM	3 J	UG/L
	VOLATILES				
		PF-ATMW-1	1,2-DICHLOROETHENE (TOTA	3 J	UG/L
			BENZENE	3 J	UG/L
			ETHYL BENZENE	3 J	UG/L
			TOLUENE	3 J	UG/L
			TOTAL XYLENES	8 J	UG/L
			VINYL CHLORIDE	6 J	UG/L
		PF-ATMW-1D	1,2-DICHLOROETHENE (TOTA	2 J	UG/L
			VINYL CHLORIDE	5 J	UG/L
			TOTAL XYLENES	8 J	UG/L
			TOLUENE	3 J	UG/L
			BENZENE	3 J	UG/L
			ETHYL BENZENE	2 J	UG/L
		PF-ATMW-2	ETHYL BENZENE	1 J	UG/L
			1,2-DICHLOROETHENE (TOTA	3 J	UG/L
			BENZENE	2 J	UG/L
			VINYL CHLORIDE	3 J	UG/L
			TOTAL XYLENES	3 J	UG/L
		PF-ATMW-3	BENZENE	2 J	UG/L
			ETHYL BENZENE	2 J	UG/L
			TOTAL XYLENES	1 J	UG/L
			VINYL CHLORIDE	2 J	UG/L
		PF-ATMW-6	BENZENE	10	UG/L
			ETHYL BENZENE	3 J	UG/L
			TOLUENE	4 J	UG/L
			TOTAL XYLENES	3 J	UG/L
			TRICHLOROETHENE (TRICHL	1 J	UG/L
			VINYL CHLORIDE	20	UG/L
			CIS-1,2-DICHLOROETHENE	3 J	UG/L
			1,2-DICHLOROETHENE (TOTA	5 J	UG/L
		PF-EMW-3	CHLOROBENZENE	2 J	UG/L
		WI-28	1,2-DICHLOROETHENE (TOTA	2 J	UG/L

Offsite Soil Investigation

New Well Borings

EXTRACTABLES

APPENDIX D

HISTORICAL SUMMARY OF PMI DATA DOCUMENTING SOIL AND GROUNDWATER IMPACTS PRIOR TO THE PERMA-FIX VANDALISM INCIDENT

List of Dates and Events - Petroleum Management Inc, Davie, Florida

I. September 4, 1992 ²:

Broward County Department of Natural Resources Protection personnel collected a water sample from an onsite monitoring well (MW-1). This sample was found to have levels of soluble hydrocarbons above state target levels (concentration not specified in report).

II. September 30, 1992 ¹:

Discharge was reported to the EQCB on this date, but the problem was first discovered September 28, 1992. **Contamination Assessment Plan (CAP)** reports that no discharge could be found and no contaminated soil detected by OVA / FID. However, a surface discharge occurred (no date reported) along the southeast containment area. An area 4 feet x 4 feet x 3 inches was excavated and placed in 5 - 55 gallon drums on January 27, 1993, and transported on February 11, 1993 to Clark Environmental, Inc. in Mulberry, Florida for disposal.

III. October 23, 1992 ¹:

Samples taken from monitoring well MW-1 were found to contain the following concentrations:

2.0 ug/L Benzene
3.0 ug/L Ethylbenzene
.010 mg/L Lead

IV. November 25, 1992 ²:

Contamination Assessment Plan (CAP) prepared by Geo Science & Engineering, Inc. was submitted to the DNR. The CAP recommended a quarterly ground-water monitoring program.

V. April 22, 1994 ²:

DNRP conducted a sampling event in which levels of soluble hydrocarbons were found above state target levels (concentrations not specified in report).

VI. September 13, 1994 ²:

DNRP performed an inspection of the Pollutant Storage Tank System during a **Tank Closure Assessment** conducted by U.S. Environmental Group, Inc..

- a) Two 4,000 gallon mixed product (gasoline, diesel, and used oil) underground storage tanks were removed.
- b) Visual inspection by USEG revealed that soil in the vicinity of the tanks exhibited staining and hydrocarbon odors.

VII. September 2, 1994 - February 23, 1995²:

USEG collected soil samples (0-2') from 66 locations at the site during the tank closure and the CAR assessment.

- a) The FDEP diesel (≥ 50 ppm) classification of "excessively impacted" soil was used to assess the soil quality at the subject site.
- b) OVA FID-PID results for the soil samples collected from the 66 locations ranged from 0 to 1,980 ppm.
- c) The total volume of "excessively impacted soil" soil was 872 cubic yards (1,220 tons). Soil screening results indicated that the impacted soil extends beneath the above ground storage tanks.
- d) "Excessively impacted" soil within the former tank farm area was excavated and refilled with clean soil.

VIII. February 22, 23 and March 20, 1995²:

USEG supervised the installation of six permanent shallow monitoring wells, MW-2 through MW-7 to determine the horizontal extent of VOC's in the ground water at the site. An existing monitoring well (MW-1) was installed at the facility in 1984. On March 20, 1995, USEG installed one deep monitoring well, MW-8D, at the site.

IX. March 3, and March 31, 1995²:

USEG field personnel collected ground-water samples from the newly installed monitoring wells. Results of the laboratory analyses of the ground water collected from these wells are as follows:

- a) MTBE was the most widespread constituent detected, with a range from BDL to 71 ug/L.
- b) Ethylbenzene (43.1 ug/L), benzene (69.9 ug/L), xylene (90.1 ug/L), toluene (2.82 ug/L), 1,3,5-trimethylbenzene (26.4 ug/L), and 1,2,4-trimethylbenzene (95.6 ug/L) were detected in MW-3 (considered as source well).
- c) Total BTEX (205.95 ug/L) and Total naphthalene (119.1 ug/L) were detected in concentrations above the FDEP target levels in the MW-3 ground-water sample.
- d) Trimethylbenzene detected in MW-3 ground-water sample exceeded the FDEP guidance concentration of 10 ug/L.

- e) Monitoring well MW-8D screened from 25 to 30 feet BLS had a MTBE concentration of 224 ug/L during a March 31, 1995 sampling event. Ethylbenzene (1.09 ug/L) and m & p xylene (1.56 ug/L) were also detected during this sampling event.
- f) Horizontal extent of MTBE ground-water impact encompasses a total area of approximately 800 square feet.
- g) Horizontal extent of BTEX ground-water impact encompasses a total area of approximately 1,000 square feet.
- h) Horizontal extent of Total naphthalene ground-water impact encompasses approximately 600 square feet.

X. May 23, 1995 ³:

Contamination Assessment Report (CAR) was prepared for the facility by USEG and approved by the DNRP in order to satisfy a requirement for an Environmental Assessment and Remediation License issued on July 15, 1994.

XI. November 17, 1995 ³:

Remedial Action Plan (RAP) was prepared for the facility by USEG and submitted to the DNRP for approval.

XII. September 1997 - Remedial Investigation Report ⁴:

A **Remedial Investigation (RI)** report for the Florida Petroleum Reprocessors Site was prepared for the USEPA by Bechtel Environmental, Inc.

- a) During the FPR field investigation, an attempt was made to sample PMI monitoring wells; however, the wells were not functioning properly (e.g., many had been plugged with concrete), or they were otherwise damaged so as to preclude the collection of representative ground-water samples.

Sources:

- 1) Contaminant Assessment Plan - Petroleum Management Inc. Facility Submitted to Broward County Office of Natural Resource Protection by Geo Science & Engineering, Inc. November 25, 1992.
- 2) Tank Closure Assessment / Contamination Assessment Report - Petroleum Management Inc. Submitted to Broward County Department of Natural Resource Protection by U.S. Environmental Group. May 23, 1995.
- 3) Remedial Action Plan - Petroleum Management Inc. Submitted to Broward County Department of Natural Protection by U.S. Environmental Group. November 17, 1995.
- 4) Remedial Investigation Report (Draft) - Florida Petroleum Reprocessors Site. Prepared for USEPA by Bechtel Environmental, Inc. September 1997.

TABLE 4
GROUNDWATER LABORATORY ANALYSIS RESULTS

PARAMETER	MCL	MW-1	MW-2	MW-3	MW-13	MW-4	MW-5	MW-6	MW-7	MW-8D	MW-8D
SAMPLING DATE		3/3/95	3/3/95	3/3/95	3/3/95	3/3/95	3/3/95	3/3/95	3/31/95	3/31/95	4/14/95
MTBE (ug/L)	50	20.7	BDL	56.6	71.7	42.5	13.7	29.5	20.5	224	BDL
BENZENE (ug/L)	1	BDL	BDL	69.9	78.8	BDL	BDL	BDL	BDL	BDL	BDL
TOLUENE (ug/L)		BDL	BDL	2.82	3.17	BDL	BDL	BDL	BDL	BDL	BDL
ETHYLBENZENE (ug/L)		BDL	BDL	43.1	46.7	BDL	BDL	BDL	BDL	1.09	BDL
TOTAL XYLENES (ug/L)		BDL	BDL	90.13	95.86	BDL	BDL	BDL	1.03	1.56	BDL
BTEX (ug/L)	50	BDL	BDL	205.95	224.5	BDL	BDL	BDL	1.03	2.65	BDL
HYDROCARBONS, TOTAL PETROLEUM (mg/L)	5	BDL	0.70	0.54	1.2	BDL	0.77	BDL	N/A	N/A	BDL
TOTAL NAPHTHALENES (ug/L)	100	BDL	BDL	119.1	117.3	BDL	BDL	BDL	BDL	BDL	BDL
LEAD (mg/L)	0.05	BDL	BDL	BDL	0.007	BDL	BDL	0.017	N/A	N/A	N/A
CHROMIUM (ug/L)	0.1	BDL	BDL	BDL	0.019	0.008	BDL	0.006	N/A	N/A	N/A
TOTAL TRIMETHYLBENZENES (ug/L)	10	BDL	BDL	122.0	126.4	BDL	BDL	BDL	N/A	N/A	N/A
4-CHLORO-3- METHYLPHENOL (ug/L)	3000	BDL	BDL	2.8	BDL	BDL	BDL	BDL	N/A	N/A	N/A
CHLOROFORM (ug/L)	6	BDL	BDL	BDL	BDL	BDL	2.12	BDL	N/A	N/A	N/A

NOTES: BDL = Below Detection Limit.
MCL = Maximum Concentration Limit per FDEP chapter
17-770.730(5)(a) or FDEP June, 1994 Groundwater Guidance Concentrations
N/A = Parameter not analyzed.

Source: Tank Closure Assessment / Contamination Assessment Report
May 23, 1995

APPENDIX G
USED OIL PROCESSOR PERMIT



Department of Environmental Protection

NOV 19 1997

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416
NOTICE OF PERMIT

Virginia B. Wetherell
Secretary

CERTIFIED MAIL P#182109868
RETURN RECEIPT REQUESTED

Perma-Fix of Ft. Lauderdale, Inc.
3701 SW 47th Avenue, Suite 109
Davie, FL 33314
Attn: Mr. Christopher L. Blanton
General Manager

DEP File No. HO06-307932
Broward County

Dear Mr. Christopher L. Blanton:


Enclosed is Permit Number HO06-307932 to **Operate** a used oil processing facility previously operated under State Permit Number SO06-289950.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

If you have any questions, please contact John Jones of this office, telephone number (561) 681-6674.

Executed in West Palm Beach, Florida on this 18th day of November, 1997.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


Carlos Rivero-deAguilar
Director of District Management
Southeast District

CRA/VK/JJ/vp

CERTIFICATE OF SERVICE

This is to certify that this **NOTICE OF PERMIT** and all copies were mailed before the close of business on Nov. 19, 1997 to the listed persons.

FILING AND ACKNOWLEDGMENT: FILED, on this date, pursuant to \$120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


Clerk

Nov 19, 1997
Date

Copies furnished to:

File, West Palm Beach
Lorraine Verano, Broward County DNRP
Rick Neves, FDEP-Tallahassee

"Protect, Conserve and Manage Florida's Environment and Natural Resources"



Department of Environmental Protection

NOV 19 1997

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

PERMITTEE:

Perma-Fix of Ft. Lauderdale, Inc.
3701 SW 47th Avenue, Suite 109
Davie, FL 33314

Attn.: Mr. Christopher L. Blanton
General Manager

I.D. Number: FLD 981 018 773
Permit/Cert Number: H006-307932
Date of Issue: November 19, 1997
Expiration Date: November 19, 2002
County: Broward
Lat/Long: 24°04'34" N/80°12'37" W
Section/Township/Range: 25/50/41
Project: Used Oil Processing
Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-4 and 62-710. The above named Permittee is hereby authorized to perform the work or operate the Facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO OPERATE: A Used Oil Processing Facility, consisting of container storage areas, an aboveground tank storage area, a wastewater pre-treatment system, and a load/unload area. (Hereinafter referred to as "Facility")

The Facility has 16 above-ground tanks which may be used to store or process used oil, oily wastewater, petroleum contact water, and other non-hazardous wastewaters as described in "Waste Oil Recycling Unit" and "Wastewater Treatment Unit" tables, Section 4, Page 29, and corresponding "Site Plan" of the permit application. All tanks are inside secondary containment. The Facility also has a hazardous drum staging area and a non-hazardous drum storage area. The Facility maintains a wastewater pretreatment system. The Facility is surrounded by a wall, a fence, and a gate for controlled access.

The Facility handles used oil, oily wastewater, oil filters, petroleum contact water, antifreeze, industrial wastewater, petroleum contaminated soils and sludges, and virgin fuel. Operation of the Facility will be in accordance with the permit application.

The Permittee also maintains a hazardous waste transfer facility at the site in accordance with Rule 62-730.171, F.A.C.

This permit replaces Permit No. SO06-289950.

IN ACCORDANCE WITH: Used Oil Processing Facility Permit Application and Instructions Final Draft (9/30/96) received June 18, 1997.

LOCATED AT: Perma-Fix of Ft. Lauderdale, Inc., 3670 SW 47th Avenue, Davie, Broward County, Florida, 33314 (Referred to as "Facility")

SUBJECT TO: General Conditions (1-15) and Specific Conditions (1-19).

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the Permittee and enforceable pursuant to the authority of Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The Permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the Permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the Permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the Permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The Permittee shall at all times properly operate and maintain the Facility and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit, as required by Department rules.
7. The Permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:
 - (a) Having access to and copying any records that must be kept under the conditions of the permit;
 - (b) Inspecting the Facility, equipment, practices, or operations regulated or required under this permit; and
 - (c) Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.Reasonable time may depend on the nature of the concern being investigated.

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GENERAL CONDITIONS (Continued):

8. If, for any reason, the Permittee does not comply with or will be unable to comply with any condition or limitation specified in the permit, the Permittee shall immediately notify and provide the Department with the following information:
 - (a) a description of and cause of non-compliance; and
 - (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The Permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.
9. In accepting this permit, the Permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, F.S.
10. The Permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the Permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The Permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.
13. This permit also constitutes:
 - () Determination of Best Available Control Technology (BACT)
 - () Determination of Prevention of Significant Deterioration (PSD)
 - () Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
 - () Compliance with New Source Performance Standards

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GENERAL CONDITIONS (Continued):

14. The Permittee shall comply with the following monitoring and record keeping requirements:
- (a) Upon request, the Permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.
 - (b) The Permittee shall retain at the Facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.
 - (c) Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - analytical techniques or methods used; and
 - results of such analyses.
15. When requested by the Department, the Permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the Permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

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SPECIFIC CONDITIONS:

PART I - STANDARD REQUIREMENTS:

1. Submittals in response to these conditions shall be submitted as follows:

(a) Two (2) copies shall be submitted to:

Hazardous Waste Program Manager
Department of Environmental Protection
Southeast District
400 North Congress Avenue
P.O. Box 15425
West Palm Beach, Florida 33416-5425

(b) One (1) copy shall be submitted to:

Environmental Administrator
Hazardous Waste Management Section
Bureau of Solid and Hazardous Waste
Department of Environmental Protection
2600 Blair Stone Road, MS 4555
Tallahassee, Florida 32399-2400

2. The Permittee shall annually register its used oil handling activities with the Department on DEP Form 62-701.900(13) by March 1 of each year.

3. The Permittee shall display the validated registration form and identification number in a prominent place at each facility location.
[Rule 62-710.500(4), F.A.C.]

4. Pursuant to 40 CFR 279.56 and Rule 62-710.510(1) the Permittee must comply with the following tracking requirements: (The Permittee shall maintain records on DEP Form 62-701.900(13) or on substantially equivalent forms which contain at least the same information as the Department form. These records may take the form of a log, invoice, manifest, bill of lading or other shipping documents which include all of the following information.)

(a) Acceptance. The Permittee must keep a record of each used oil shipment accepted for processing. Records for each shipment must include the following information:

- (1) The name and address of the transporter who delivered the used oil to the Permittee;
- (2) The source of the used oil, including the name and street address of each source, the EPA identification number of the source, if applicable;
- (3) The EPA identification number of the transporter who delivered the used oil to the Permittee;
- (4) The EPA identification number (if applicable) of the generator or processor from whom the used oil was sent;
- (5) The total number of gallons of used oil received from each source, including any oily wastes which may be an integral part of the used oil shipment. This includes the type of used oil received, using the type code designation found in the form instructions; and
- (6) The date of receipt/acceptance.

SPECIFIC CONDITIONS: (Continued)

- (b) Delivery. The Permittee must keep a record of each shipment of used oil that is shipped to a used oil burner, processor/re-refiner, or disposal facility. Records for each shipment must include the following information:
 - (1) The name and address of the transporter who delivers the used oil to the burner, processor/re-refiner or disposal facility;
 - (2) The name and address of the burner, processor/re-refiner or disposal facility who will receive the used oil along with the end use code designation found in the form instructions;
 - (3) The EPA identification number of the transporter who delivers the used oil to the burner, processor/re-refiner or disposal facility;
 - (4) The EPA identification number of the burner, processor/re-refiner, or disposal facility who will receive the used oil;
 - (5) The quantity of used oil shipped; and
 - (6) The date of shipment.
 - (c) Record retention. All records required by this permit, including the records described in paragraphs (a) and (b) of this section, must be maintained for at least three years. The records shall be kept at the street address of the Permittee and shall be available for inspection by the Department during normal business hours.
- 5. The Permittee shall maintain documentation of any shipment of used oil which is refused due to suspected mixing with hazardous waste. The Permittee shall notify the Department's Southeast District Office, Hazardous Waste Section Supervisor, at (561)681-6600.
 - 6. Pursuant to 40 CFR 279.57 the Permittee must keep a written operating record at the Facility. This includes the following information, which must be recorded as it becomes available and maintained in the operating record until closure of the Facility:
 - (a) Records and results of used oil analyses performed as described in the analysis plan required under 40 CFR 279.55; and
 - (b) Summary reports and details of all incidents that require implementation of the contingency plan as specified in 40 CFR 279.52(b).
 - 7. No later than March 1 of each year, the Permittee shall submit an annual report for the preceding calendar year to the Department on DEP Form 62-701.900(14). The report shall summarize the records kept pursuant to 40 CFR 279.57(b) and Rule 62-710, F.A.C. and shall also include:
 - (a) The EPA identification number, name, and address of the Permittee;
 - (b) The calendar year covered by the report; and
 - (c) The quantities of used oil accepted for processing and the manner in which the used oil is processed, including the specific processes employed.
 - 8. The Permittee shall operate, modify, or close the Facility only pursuant to this permit issued by the Department in accordance with Rule 62-710, F.A.C.

SPECIFIC CONDITIONS: (Continued)

9. Aboveground storage and process tanks, having a capacity greater than 550 gallons, and all integral piping shall comply with the performance standards of Rule 62-762.500, F.A.C., for new tanks, Rule 62-762.510, F.A.C., for existing shop-fabricated tanks, or Rule 62-762.520, F.A.C., for existing field erected tanks. The required assessment for structural integrity and tightness for process and storage tank integral piping shall be completed by December 31, 1997. Repairs to aboveground storage and process tanks shall meet the criteria of Rule 62-762.700, F.A.C.
10. The inspection records and release detection monitoring required in Rule 62-762.600, F.A.C., for aboveground storage and process tanks and integral piping shall be maintained in the Permittee's operating record.
11. Before closing or making any substantial modification to the Facility, the Permittee shall submit to the Department the Used Oil Processing Facility Permit Modification Request, pursuant to Rules 62-4.080 and 62-710.800(6), F.A.C. The engineering aspects of the request must be certified by a Professional Engineer.
 - (a) Pursuant to Rules 62-4.050(6,7) and 62-710.800(6)(a), F.A.C., a substantial modification means a modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review. For purposes of this subsection, an increase in storage capacity of the Facility by 25% or 25,000 gallons, whichever is less, is considered a substantial modification.
 - (b) Pursuant to Rules 62-4.050(4)(r) and 62-710.800(6)(b), F.A.C., a minor modification means a modification that does not require substantial technical evaluation by the Department, does not require a new site inspection by the Department, and will not lead to substantially different environmental impacts or will lessen the impacts of the original permit. For purposes of this subsection, replacement of existing tanks with new tanks is considered a minor modification.
 - (c) Pursuant to Rule 62-710.800(6)(c), F.A.C., changes at the Facility which involve routine maintenance, such as repair of equipment, replacement of equipment with similar equipment, aesthetic changes, or minor operational changes are not considered modifications, do not have to be reported to the Department, and require no permit fee. The Permittee should contact the Department if there are questions as to whether a change would be considered routine maintenance.
12. Notwithstanding the provisions of Rule 62-4.050, F.A.C., the fee for a used oil processor permit application is \$2,000. The fee for a substantial modification to the permit or permit renewal application is \$500. No permit fee is required for minor modifications. Applications for renewal of permits shall be submitted to the Department at least 60 days prior to the expiration date of the existing permit in accordance with Rule 62-4.090, F.A.C.

SPECIFIC CONDITIONS: (Continued)

13. The closure plan:

- (a) The Permittee shall maintain an adequate written closure plan and it must demonstrate how the Facility will be closed to meet the following requirements:
- (1) There will be no need for further facility maintenance;
 - (2) Used oil will not contaminate surface or ground water;
 - (3) All tanks, piping, secondary containment and ancillary equipment will be emptied, cleaned and decontaminated, and all materials removed and managed; and
 - (4) Aboveground tanks. Aboveground storage and process tanks and all integral piping will be closed pursuant to Rule 62-762, F.A.C. and 40 CFR 279.54(h). Permittees who store or process used oil in aboveground tanks must comply with the following requirements:
 - (i) At closure of a tank system, the Permittee must remove or decontaminate used oil residues in tanks, contaminated containment system components, contaminated soils, and structures and equipment contaminated with used oil, and manage them as hazardous waste, unless the materials are not hazardous waste as defined in 40 CFR 261 or determined, pursuant to 40 CFR 262.11.
 - (ii) If the Permittee demonstrates that not all contaminated soils can be practicably removed or decontaminated as required, then the Permittee must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to hazardous waste landfills as defined in 40 CFR 265.310.
 - (5) Containers. Pursuant to closure requirements of 40 CFR 279.54(h), Permittees who store used oil in containers must comply with the following requirements:
 - (i) At closure, containers holding used oils or residues of used oil must be removed from the site;
 - (ii) The Permittee must remove or decontaminate used oil residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with used oil, and manage them as hazardous waste, unless the materials are not hazardous waste as defined in 40 CFR 261 or determined, pursuant to 40 CFR 262.11.
- (b) The closure plan shall be updated whenever significant operational changes occur or design changes are made.
- (c) The closure plan shall be maintained with records required under Rule 62-710.510, F.A.C.
- (d) The Permittee shall submit an updated and detailed closure plan to the Department at least 60 days prior to the scheduled date of closing the Facility.
- (e) Within 30 days after closing the Facility, the Permittee shall submit a certification of closure completion to the Department which demonstrates that the Facility was closed in substantial compliance with the detailed closure plan.

SPECIFIC CONDITIONS: (Continued)

14. The Permittee must comply with General Facility Standards pursuant to 40 CFR 279.52 and Rule 62-710.800(1) as follows:

(a) Preparedness and prevention. The Permittee must comply with the following requirements:

- (1) Maintenance and operation of Facility. The Facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water which could threaten human health or the environment.
- (2) Required equipment. The Facility must be equipped with the following:
 - (i) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to Facility personnel;
 - (ii) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;
 - (iii) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment and decontamination equipment; and
 - (iv) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.
- (3) Testing and maintenance of equipment. All Facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.
- (4) Access to communications or alarm system.
 - (i) Whenever used oil is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee.
 - (ii) If there is ever just one employee on the premises while the Facility is operating, the employee must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance.
- (5) Required aisle space. The Permittee must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Facility operation in an emergency.
- (6) Arrangements with local authorities.
 - (i) The Permittee must maintain the following arrangements:
 - (A) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the Facility, properties of used oil handled at the Facility and associated hazards, places where Facility personnel would normally be working, entrances to roads inside the Facility, and possible evacuation routes;

SPECIFIC CONDITIONS: (Continued)

- (B) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
 - (C) Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and
 - (D) Arrangements to familiarize local hospitals with the properties of used oil handled at the Facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the Facility.
- (ii) Where State or local authorities decline to enter into such arrangements, the Permittee must document the refusal in the operating record.
- (b) Contingency plan and emergency procedures. The Permittee must comply with the following requirements:
- (1) Purpose and implementation of contingency plan.
 - (i) The Permittee must have a contingency plan for the Facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water.
 - (ii) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of used oil which could threaten human health or the environment.
 - (2) Content of contingency plan.
 - (i) The contingency plan must describe the actions Facility personnel must take to comply with paragraphs (b) (1) and (6) of this section in response to fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water at the Facility.
 - (ii) The Permittee may amend a Spill Prevention, Control, and Countermeasures (SPCC) Plan to comply with the requirements of this part.
 - (iii) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to paragraph (a) (6) of this section.
 - (iv) The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see paragraph (b) (5) of this section), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.
 - (v) The plan must include a list of all emergency equipment at the Facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.

SPECIFIC CONDITIONS: (Continued)

- (vi) The plan must include an evacuation plan for Facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of used oil or fires).
- (3) Copies of contingency plan. A copy of the contingency plan and all revisions to the plan must be:
 - (i) Maintained at the Facility; and
 - (ii) Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.
- (4) Amendment of contingency plan. The contingency plan must be reviewed, and immediately amended, if necessary, whenever:
 - (i) Applicable regulations are revised;
 - (ii) The plan fails in an emergency;
 - (iii) The Facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of used oil, or changes the response necessary in an emergency;
 - (iv) The list of emergency coordinators changes; or
 - (v) The list of emergency equipment changes.
- (5) Emergency coordinator. At all times, there must be at least one employee either on the Facility premises or on call (i.e., available to respond to an emergency by reaching the Facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the Facility's contingency plan, all operations and activities at the Facility, the location and characteristic of used oil handled, the location of all records within the Facility, and Facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.
- (6) Emergency procedures.
 - (i) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the designee when the emergency coordinator is on call) must immediately:
 - (A) Activate internal Facility alarms or communication systems, where applicable, to notify all Facility personnel; and
 - (B) Notify appropriate State or local agencies with designated response roles if their help is needed.
 - (ii) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and a real extent of any released materials. He may do this by observation or review of Facility records of manifests and, if necessary, by chemical analyses.
 - (iii) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water of chemical agents used to control fire and heat-induced explosions).

SPECIFIC CONDITIONS: (Continued)

- (iv) If the emergency coordinator determines that the Facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the Facility, he must report his findings as follows:
 - (A) If his assessment indicated that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and
 - (B) He must immediately notify the Department's State Warning Point at 850/413-9911 and the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:
 - (1) Name and telephone number of reporter;
 - (2) Name and address of Facility;
 - (3) Time and type of incident (e.g., release, fire);
 - (4) Name and quantity of material(s) involved, to the extent known;
 - (5) The extent of injuries, if any; and
 - (6) The possible hazards to human health, or the environment, outside the Facility.
- (v) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other used oil or hazardous waste at the Facility. These measures must include, where applicable, stopping processes and operation, collecting and containing released used oil, and removing or isolating containers.
- (vi) If the Facility stops operation in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.
- (vii) Immediately after an emergency, the emergency coordinator must provide for recycling, storing, or disposing of recovered used oil, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the Facility.
- (viii) The emergency coordinator must ensure that, in the affected area(s) of the Facility:
 - (A) No waste or used oil that may be incompatible with the released material is recycled, treated, stored, or disposed of until cleanup procedures are completed; and
 - (B) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.
 - (C) The Permittee must notify the Department that the Facility is in compliance with paragraphs (b)(6)(viii)(A) and (B) of this section before operations are resumed in the affected area(s) of the Facility.

SPECIFIC CONDITIONS: (Continued)

- (ix) The Permittee must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the Department. The report must include:
- (A) Name, address, and telephone number of the Permittee;
 - (B) Name, address, and telephone number of the Facility;
 - (C) Date, time, and type of incident (e.g., fire, explosion);
 - (D) Name and quantity of material(s) involved;
 - (E) The extent of injuries, if any;
 - (F) An assessment of actual or potential hazards to human health or the environment, where this is applicable;
 - (G) Estimated quantity and disposition of recovered material that resulted from the incident.
15. The Permittee must comply with the following requirements, pursuant to 40 CFR 279.53, regarding the rebuttable presumption for used oil.
- (a) To ensure that used oil managed by the Permittee is not hazardous waste under the rebuttable presumption of 40 CFR 279.10(b)(1)(ii), the Permittee must determine whether the total halogen content of used oil managed at the Facility is above or below 1,000 ppm.
 - (b) The Permittee must make this determination by:
 - (1) Testing the used oil; or
 - (2) Applying knowledge of the halogen content of the used oil in light of the materials or processes used.
 - (c) If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in 40 CFR 261, Subpart D. The Permittee may rebut the presumption by demonstrating that the used oil does not contain hazardous waste or show it to be exempt as allowed in 40 CFR 279.53(c)(1,2).
16. The Permittee must comply with the used oil management standards, pursuant to 40 CFR 279.54, and all applicable Spill Prevention, Control and Countermeasures, pursuant to 40 CFR 112, in addition to the following.
- (a) Management units. The Permittee may not store used oil in units other than tanks, containers, or units subject to regulation under 40 CFR 264 or 265.
 - (b) Condition of units. Containers and aboveground tanks used to store or process used oil at the Facility must be:
 - (1) In good condition (no severe rusting, apparent structural defects or deterioration); and
 - (2) Not leaking (no visible leaks).
 - (c) Secondary containment for containers and aboveground tanks. Containers and aboveground tanks used to store or process used oil at the Facility must be equipped with a secondary containment system.
 - (1) The secondary containment system must consist of, at a minimum:
 - (i) Dikes, berms or retaining walls; and
 - (ii) A floor. The floor must cover the entire area within the dike, berm, or retaining wall; or
 - (iii) An equivalent secondary containment system.

SPECIFIC CONDITIONS: (Continued)

- (2) The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, groundwater, or surface water.
 - (d) Labels. Containers and aboveground tanks used to store or process used oil at the Facility must be labeled or marked clearly with the words "Used Oil."
 - (e) Response to releases. Upon detection of a release of used oil to the environment the Facility must perform the following cleanup steps:
 - (1) Stop the release;
 - (2) Contain the released used oil;
 - (3) Clean up and manage properly the released used oil and other materials; and
 - (4) If necessary, repair or replace any leaking used oil storage containers or tanks prior to returning them to service.
17. Pursuant to 40 CFR 279.55, the Permittee must maintain a written analysis plan and follow the procedures it contains to comply with the analysis requirements of 40 CFR 279.53 and, if applicable, 40 CFR 279.72. The Permittee must keep the plan at the Facility.
- (a) Rebuttable presumption for used oil in 40 CFR 279.53. At a minimum, the plan must specify the following:
 - (1) Whether sample analyses or knowledge of the halogen content of the used oil will be used to make this determination.
 - (2) If sample analyses are used to make this determination:
 - (i) The sampling method used to obtain representative samples to be analyzed.
 - (ii) The frequency of sampling to be performed, and whether the analysis will be performed on-site or off-site; and
 - (iii) The methods used to analyze used oil for the parameters specified in 40 CFR 279.53; and
 - (3) The type of information that will be used to determine the halogen content of the used oil.
 - (b) On-specification used oil fuel in 40 CFR 279.72. At a minimum, the plan must specify the following if 40 CFR 279.72 is applicable:
 - (1) Whether sample analyses or other information will be used to make this determination;
 - (2) If sample analyses are used to make this determination:
 - (i) The sampling method used to obtain representative samples to be analyzed. A representative sample may be obtained using either:
 - (A) One of the sampling methods in 40 CFR 261, Appendix I; or
 - (B) A method shown to be equivalent under 40 CFR 260.20 and 260.21;
 - (ii) Whether used oil will be sampled and analyzed prior to or after any processing;
 - (iii) The frequency of sampling to be performed, and whether the analysis will be performed on-site or off-site; and
 - (iv) The methods used to analyze used oil for the parameters specified in 40 CFR 279.72 and 40 CFR 279.11; and
 - (3) The type of information that will be used to make the on-specification used oil fuel determination.
18. Pursuant to 40 CFR 279.58, the Permittee may only initiate shipments of used oil off-site using a used oil transporter who has obtained an EPA identification number.

Perma-Fix of Ft. Lauderdale, Inc.
3701 SW 47th Avenue, Suite 109
Davie, FL 33314
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Permit/Cert Number: HO06-307932
Project: Used Oil Processing
Facility

SPECIFIC CONDITIONS: (Continued)

19. Pursuant to 40 CFR 279.59, the Permittee must manage the residues generated from the storage and processing of used oil as specified in 40 CFR 279.10(e).

Issued this 18th day of November, 1997

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

[Signature]
- Carlos Rivero-deAguilar
Director of District Management
Southeast District

VK
RCRA/VK/JJ/vp

APPENDIX H
DEXSIL TEST KIT

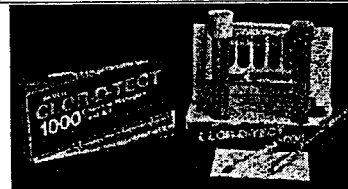
CLOR-D-TECT

Test Kits for the Analysis of Chlorinated Contaminants in Used Oil

**Dexsil Corporation
One Hamden Park Drive
Hamden, Connecticut 06517**

Dexsil manufactures two Clor-D-Tect test kits for verifying compliance with hazardous waste regulations. Clor-D-Tect 1000 tells the user if an oil contains less than or greater than 1000 ppm chlorine. Clor-D-Tect Q4000 provides a quantitative result over the range of 100 to 4000 ppm. The test kits are recognized by EPA (SW-846 Method 9077) and ASTM (Method D-5384) and are sufficient for showing compliance with the federal regulations regarding the disposal, recycling, or re-refining of used oil. The test kits are inexpensive, disposable and no additional instrumentation or up front capital cost is required.

Clor-D-Tect 1000 for greater or less than results...



.....Clor-D-Tect Q4000 for Quantitative Analysis

The Regulations-

US EPA Regulations require that before a used oil is disposed of, recycled, or re-refined, it must be demonstrated that the oil contains less than 1000 ppm total chlorine (total halogens). If the source of chlorine can be shown to be non-hazardous, then the limit is 4000 ppm (see Rebuttable Presumption). If it cannot be shown that the oil is below these limits for total halogens, then the oil must be treated as hazardous.

How Clor-D-Tect Works-

The Clor-D-Tect kits are completely self-contained and hold all the reagents and materials necessary to perform the testing. A small, plastic sampling syringe is filled with the oil to be tested. The oil sample is then dispensed into a flexible plastic test tube which contains two reagent ampules. These ampules are broken in sequence and the reagents are allowed to react with the oil. An aqueous buffer solution is then poured into the test tube and the mixture is well shaken. After being allowed to settle

for one minute, the aqueous solution is decanted into a second test tube through a dispensing cap. In the case of Clor-D-Tect 1000, two more reagent ampules are broken and the color of the solution is observed. If the solution is violet, the sample contains less than 1000 ppm chlorine. In the case of Clor-D-Tect Q4000, a small titrating syringe is screwed into the top of the test tube. The operator dispenses the titrant dropwise until the solution changes color. The chlorine concentration is then read off the side of the syringe. Each kit takes about five minutes from start to finish.

Who Should Use Clor-D-Tect?



Kits are About the Size
of a Video Cassette

Clor-D-Tect kits are used widely by:

- oil haulers
- recyclers
- re-refiners
- burners
- generators
- enforcement officials

The test kits are the fastest, easiest way to verify total halogen levels as required by the regulations. The kits are designed to be used by anyone and can be run successfully after reading the one page instructions.

Additional Information

Clor-D-Tect kits are available in packages of ten or twenty and can be shipped non-hazardous by ground or air. The kits have a shelf life of one year and do not require refrigeration. Distributors are accessible worldwide. For a complimentary video showing how the kits work or to get pricing and distributor information, return to the [Dexsil Home Page](#) and specify your request in the "comments, suggestions, and requests" box. Or call us at 800-433-9745.

For information on the used oil industry,

contact the National Oil Recyclers Association



[Top of Page](#) [Dexsil Home Page](#) [Other Products](#) [Comments](#)

Dexsil, Clor-N-Oil, Clor-D-Tect, Clor-N-Soil, L2000 and PetroFLAG are registered trademarks of Dexsil Corporation.



Material Safety Data Sheet

Product Name: Clor-D-Tect 1000®

Foss Part# 5004, 5048, 5050

Product Description: Chlorine/Halogen Test Kit

I. Manufacturer Identification

Manufacturer's Name: Foss Environmental

Address: PO Box 80327 Seattle, WA 98108

Emergency Telephone: (800) 433-9745 or (800) 909-3677

ChemTrec: (800) 424-9300

Tel No. For Information: (800) 909-3677 or (206) 768-1406

II. Hazardous Ingredients/Identity Information

Hazardous Components(Specific Chemical Identity:

Common Name(s)): The Clor-D-Tect 1000 Chlorine/Halogen Test Kit consists of one test tube containing two

Component Contents TLV CAS# Hazard Class UN #

Ampule 1 60mg Sodium NF 7440-23-5 4.3 1391

(gray color, dispersed Dangerous yellow dot) in oil When Wet

Ampule 2 0.14g Naph- 50mg 91-20-3 4.1 Flam 1334 (Large, thalene in /m3 Solid Colorless) Ethyl Diglyme NF 1

Ampule 3 1.3 mg 0.1 mg 10045-94-0 6.1 1625 (yellow-dot) Mercuric /m3 Poison Nitrate in water

Ampule 4 400 mg 1900mg 00064-17-5 3.2 Flam 1170 (red-green) Ethanol /m3 Liquid

Ampule 5 0.50 ml (colorless) Organo-Sulfur Proprietary Compound

Aqueous 7ml of 3% NF 7664-93-9 8 Corrosive 1830 Solution Sulfuric Acid (pH 1.1), <0.05% NE 7440-43-9 6.1

III. Physical/Chemical Characteristics

Boiling Point: *Ampule 1:* N/A *Ampule 2:* 185

Ampule 3: 100 *Ampule 4:* 78

Ampule 5: 100 *Aq. Soli:* >100

Vapor Pressure (mm Hg. @ 21°C) :

Ampule 1: NA *Ampule 2:* 0.5

Ampule 3: 18 *Ampule 4:* 44

Ampule 5: 18 *Aq. Soli:* 16

Solubility in Water:

Ampule 1: reacts *Ampule 2:* 91%

Ampule 3: complete *Ampule 4:* miscible

Ampule 5: miscible *Aq. Soli:* complete

IV. Health Hazard Data

Health Hazards (Acute and Chronic) :

Carcinogenicity: NTP? Yes

IARC? Yes

Z List? No

OSHA? Not regulated

This product contains Cadmium, which is listed as a NTP anticipated human carcinogen and an IARC probable

Emergency and First Aid Procedures: In case of contact with reagents, rinse well with water. In case of inhal
Skin contact: Flush with large amounts of water. Use soap and water to wash away organic components.
Eye Contact: For all kit components, flush eyes with large amounts of water for 15 minutes. Seek medical atten
Inhalation: In case of inhalation, remove to fresh air.

V. Precautions For Safe Handling and Use

Steps To Be Taken In Case Material Is Released Or Spilled:

Ampule 1: Sodium Ampule - Cover with dry soda or salt. Store in well-ventilated area away from moisture.

Ampule 2: Naphthalene/Ethyl Diglyme Ampule - Absorb completely and dispose of as organic waste.

Ampule 3: Mercuric Nitrate Ampule - Absorb completely and flush area with water.

Ampule 4: Ethanol Ampule - Solvent absorbent recommended for spills. Flush area with water.

Aqueous Solution: Absorb completely and flush area with water.

Foss Environmental PO Box 80327 Seattle, Washington 98108 USA
tel 800.909.3677 fax 888.234.3677 e-mail fossenv@fossenv.com

APPENDIX I
REFERENCES

REFERENCES

1. Perma-Fix of Ft. Lauderdale, Used Oil Permit Application, April 1997.
2. Integrated Resource Recovery, RCRA Operating Permit Application, January 1991.
3. Integrated Resource Recovery, RCRA Operating Permit Application, January 1993.
4. FDEP Report from the RCRA Compliance Evaluation Inspection conducted at Perma-Fix on December 27, 1995.
5. Spill Response Report prepared by FDEP Office of Emergency Response, October 14, 1996
6. Contamination Assessment Report prepared by Aqua Terra, Inc. for the site dated October 1997.
7. Matrix of Habitats and Distribution by County of Rare/Endangered Species in Florida, by The Nature Conservancy. September 1989.
8. Census 90, U.S. Department of Commerce.
9. Hydrologic Almanac of Florida, U. S. Geologic Survey, 1981.

ADDITIONAL SOURCES OF INFORMATION

1. RFA/VSI documents provided by Perma-Fix on June 16, 1997.